# NEVADA

# STATE HEALTH INFORMATION TECHNOLOGY STRATEGIC AND OPERATIONAL PLAN

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*The State of Nevada Department of Health and Human Services Office of Health Information Technology is pleased to submit Nevada's State Health Information Technology Strategic and Operational Plan to the Office of the National Coordinator for Health Information Technology, pursuant to the State Health Information Exchange Cooperative Agreement Program established by the American Recovery and Reinvestment Act of 2009 Health Information Technology for Economic and Clinical Health Act.*

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# 1 Introduction

The State of Nevada Department of Health and Human Services (DHHS) Office of Health Information Technology (OHIT) is pleased to submit the second annual update to our state Health Information Technology Strategic and Operational Plan (State HIT Plan) to the Office of the National Coordinator for Health Information Technology (ONC), pursuant to the State Health Information Exchange (SHIE) Cooperative Agreement Program (CAP) established by the American Recovery and Reinvestment Act of 2009 (ARRA) Health Information Technology for Economic and Clinical Health (HITECH) Act.

The state believes that the HITECH Act provides the impetus to materially improve the efficiency, quality, and safety of health care services to its residents. However, the state's efforts to advance HIT and HIE, particularly electronic health record systems (EHRs), are progressing slower than expected due to the ongoing fragility of the state's economy. It is showing signs of recovery, although significant improvement may not be seen until 2014. This has the potential to precipitate delays at any given point of the state's efforts to establish its statewide HIE services, technology platform, and functional solutions.

This second annual update of the State HIT Plan has been developed to address these challenges and continues the state's commitment to implementing HITECH requirements, fulfilling the terms of the HIE Cooperative Agreement, and establishing a viable statewide HIE infrastructure in as timely a manner as possible. In addition, this revised State HIT Plan includes additional observations in assessing current State HIT capabilities and readiness, views of major HIE stakeholders, and operational alternatives discovered through domestic and international case studies.

This planning document will evolve over time and will be updated, minimally, on an annual basis. It may be updated more often at the discretion of the State HIT Coordinator.

# 2 About this Document

This document is the second annual update to the State's original Strategic and Operational Plan (State HIT Plan) which was submitted to and approved by ONC in 2011, and remains the state's roadmap to creating and maintaining a financially and technically sustainable statewide HIE system. Nevada will launch the Nevada HIE in two major steps: first by initiating connectivity to support Stage 1 Meaningful Use through services built on the DIRECT Secure Messaging model, and second, by implementing a robust statewide HIE that will be operated by a 501(c)3 nonprofit entity, contracted by Nevada's Department of Health and Human Services. This nonprofit governance and operational organization will be accountable to the state and aligned with directives of the ONC. Its technical capabilities and services will be compatible with the evolving Nationwide eHealth Exchange (Healtheway), while leveraging existing technologies, human resources, and associated overlapping strategies that may exist in the state's health care community. Further, this plan will be enabled through collaboration with stakeholders, participants, and other users from throughout the state and in neighboring states when and where appropriate. The initiatives set forth in this plan are driven by the state's comprehensive understanding of the business and technical challenges to sustainability, interoperability, meaningful use of EHRs, and the overall approach and execution required to build, achieve adoption of, operate, launch and sustain a successful and robust statewide HIE system, beginning with DIRECT connectivity.

## 2.1 State HIT Plan Update Format Cross-Walk

The following table has been provided to enable ONC reviewers a mapping between the requested format provided in ONC-PIN-002, Section 1.3 and the State HIT Plan document which has been structured to align with the priorities of the state.

| State HIT Plan Update Section | NV DHHS State HIT Plan Section | Comments |
|---|---|---|
| 1. Changes in HIE Strategy | Section 2 | Table from ONC-HIE-PIN-002 Appendix A (Changes to HIE Strategy) has been included below. |
| 2. Sustainability Plan | Section 4.3.1<br>Section 8 | The strategy for sustainability is described in Section 4.3.1, and the Sustainability Plan is described in Section 8. |
| 3. Program Evaluation | Section 4.3.7 Monitor Success | ONC-HIE-PIN-002 requirements have been incorporated within this section as well as a new Appendix for the Evaluation Plan which is referenced in Section 4.3.7. |
| 4. Privacy & Security Framework | Section 4.3.4<br>Section 12 | ONC-HIE-PIN-003 requirements for the Privacy and Security Framework have been addressed in these two sections. Section 4.3.4 focuses on strategy. Section 12 has the details requested by ONC-HIE-PIN-003 Appendix A. |

| State HIT Plan Update Section | NV DHHS State HIT Plan Section | Comments |
|---|---|---|
| 5. Project Management Plan | Section 14 | High level plan has been developed recognizing that the work will need to be defined by the Nevada HIE Board of Directors and the governing organization, which is in the process of being established. As such, the plan is hypothetical based on other state HIE experiences. |
| 6. Tracking Program Progress | 4.3.7 Monitor Success | ONC-HIE-PIN-002 requirements have been incorporated within this section, as well as a new Appendix for the Evaluation Plan which is referenced in Section 4.3.7. |

## 2.2 Summary

The content and flow of this updated plan is indicative of the state's continuing commitment to and command of the project, including its organization, coordination, and execution of related efforts. This document has been developed to project the desired point-of-view and level of project acumen to ONC, so as to enable ONC to follow the progress of the project through these annual updates through the life of the program. This plan is a living document intended to accurately depict the overall design and intent of the state's HIE initiatives - conforming with and adapting to, when necessary, appropriate ONC directives. It continues to be compelled by ARRA, HITECH and Nevada law. By these guiding points, the state will continue to strive for success, stability, viability, and longevity in its growing, evolving statewide HIE system.

Nevada's HIE project leadership continues this program with a sound plan for governance, the overall solution of DIRECT services, and robust HIE capabilities with the deployment of the best available products, and outstanding overall management. This document addresses, either directly or by inference, significant HIE operational and/or enabling points including:

- CMS objectives and goals and incentives for meaningful use of certified Electronic Medical Record (EMR) technologies, information, and related supporting product, connectivity, and interoperability.
- State and local inter-agency collaboration between all DHHS agencies, including OHIT and Nevada Medicaid, the Division of Insurance, the Silver State Health Insurance Exchange (SSHIX), the State Health Authorities, the Governor's Office of Economic Development, and the Department of Employment, Training and Rehabilitation whenever appropriate, in order to optimize and economize the state's overall HIE- related service needs, resources and infrastructure in order to build and operate the most efficient and effective statewide HIE system possible.
- HIPAA process, consent, and legal compliance.
- Compliance with all provisions of Nevada Senate Bill 43(2011), particularly NRS 439.581-595.
- ONC desired compatibility with the evolving eHealth Exchange and compliance to related data and networking standards.
- HIE technical and architectural models for DIRECT and robust HIE, including project management and design experience so as to execute the building and deployment of a statewide HIE.

- Leveraging of existing state infrastructure, including broadband capabilities—and recognizing where such infrastructure may be lacking or non-existent—and plans to build appropriate infrastructure capabilities.
- Connectivity and or reporting to such agencies as immunizations and public health, state and federal emergency management and/or population health agencies, including the Centers for Disease Control and Prevention and the Federal Emergency Management Agency.
- Use of data standards such as HL7, eLINCS, ASTM, and others.
- Application of interoperability standards such as LOINC and SNOMED.
- Collaboration with industry stakeholders including payors, providers, vendors, the US Department of Defense, tribal health services, veterans hospitals/clinics, and other HIEs and state health information agencies.
- Continuing to work through all CAP and PIN directives when indicated throughout the life of the program.

Further, though the selection of technologies, solutions, and adoption of various leading practices, the state anticipates realizing key HIE objectives through the use of the following concepts or approaches:

- Application of technologies that have demonstrated their worth in health care and other spaces and can be deployed based on commercial-off-the-shelf (COTS) technologies products to support interoperability and meaningful use objectives.
- Use of provider and translation service registries as a pragmatic approach to interoperability implementation.
- Industry-leading database and middle-tier technologies.
- Taking advantage of a standards-based, service-oriented architecture (SOA) including the adoption of the Medicaid Information Technology Architecture (MITA) framework.
- Implementing technologies based on international standards such as IHE, IEEE, and others.
- Supporting a defined set of transport, translation/validation, and transformation services for messages such as EDI/HIPAA, HL7 2.x and 3.0, NCPDP, flat and proprietary formats over transports including HTTP/S, FTP/S, SMTP, and SOAP.
- The ability to leverage service oriented architecture (SOA) to meet the needs of EHR/EMR interoperability and connectivity, leveraging and/or partnering with existing state technology resources (when available and appropriate) to afford the citizens and HIE community of the state true value for the investment.
- Comprehensive approach to privacy, security, and confidentiality of individually identifiable health information (IIHI), patient choice and consent, and any related strategies for remediation when needed.
- Comprehensive approach to change management and communications to help drive consumer and provider community preparedness, and stakeholder and consumer/patient adoption.
- A consistent, focused approach and vision that the State HIE will be scalable, adaptable, and open to the growth, evolution, and connectivity necessary to accommodate future requirements.

In summary, the intent of this second annual Strategic and Operational Plan update is to:

- Continue to provide a strategic vision with concepts that give context to the reader, while describing the current organizational and technical solutions, and describing the state's current direction and implementation plans;
- Continue to document and clearly define the strategic approach for the formation of the state's governance and business organization responsible for HIE services and the ongoing implementation of the HIE technical services; and,
- Define an implementation approach that accounts for the state's current status, with accountability to the state's detailed implementation plan being assigned to the NV-HIE governance and business organization.

The structure of this document will continue to reflect an evolving business plan that now also documents the operational implementation of DIRECT connectivity, as well as the initial formation of the state's 501(c)3 nonprofit governance and technical operations organization. And, as has been the case, the process to update this document will be managed collaboratively across the state's HIE team and constituency, and in full view of and with guidance from ONC on at least an annual basis, or more often at the discretion of the State HIT Coordinator.

# 3 Facts about the State Health Care Environment

The following are major points of Nevada's overall demographic that will impact the manner in which the state's HIE environment will be planned, strategized, built, operated, and sustained.

- A significant portion of the state is federally designated as frontier.
- Population: 2,750,217 (2012 certified estimate of the Nevada State Demographer)
  Note: Nevada had been the fastest growing state in the rate of population growth for most of the past twenty years and for the last six consecutive decennial censuses. These growth rates leveled off in 2008, and today the State is projected to grow by more than 650,000 or 20 percent over the next 20 years.
- 90 percent of the state's population is concentrated in three urban areas—four-fifths of Nevadans reside in Clark County in the south, and the other one-fifth live in Washoe County and Carson City in the northwest. The remaining 10 percent of the population reside throughout state's 14 frontier and rural counties.
- Nevada is the seventh-largest state at 110,567 square miles and the most mountainous, with over 300 named mountain ranges.
- An average of 85 percent of the state's land is controlled by the federal government.
- Approximately 1.6 percent of the state land is tribal land belonging to various Paiute, Shoshone and Washoe groups, with some reservations overlapping state or county borders.
- Statewide, Nevada has 56 hospitals and over 5,400 licensed providers (3,000 are Eligible Providers).
- There are two Federally-Qualified Health Centers (FQHCs) in Nevada, with over 25 clinic sites between them.
- The Indian Tribes of Nevada maintain approximately 15 tribal health centers/clinics, one of which is also an FQHC look-alike and another has applied for FQHC look-alike status.
- Nevada is home to two Veterans Administration hospitals (North Las Vegas and Reno) and ten community-based Veterans Administration outpatient clinics. There are three military bases in the State: Naval Air Station Fallon (north), Nellis and Creech Air Force Bases (south).
- Approximately 11 percent of the population is enrolled in Nevada Medicaid and 13 percent is enrolled in Medicare.
- Approximately 85 percent of the state has been designated as Primary Care Health Professional Shortage Areas by HRSA, including key urban areas.

# 4 Nevada HIE Strategy

The state is committed to building a statewide infrastructure supporting a fully operational, self-sustainable HIE. The state has established the Nevada Health Information Exchange (NV-HIE) as a nonprofit business that will develop, implement and operate the statewide health information exchange system. This business (NV-HIE Business) will be accountable to the State-Designated Entity (DHHS) via a governance and operational management structure. The state welcomes the opportunity to initiate this strategy with the Office of the National Coordinator, utilizing the funding available through The American Recovery and Reinvestment Act (ARRA) and administered by ONC.

Presently, the state is launching the statewide HIE in two major steps: the first being state administered DIRECT connectivity, followed immediately by the second major step which is a full robust HIE under the administration of the NV-HIE 501(c)3 nonprofit governance and technical operations organization. The state has built and deployed the capability for stakeholders to connect via DIRECT connectivity (which supports stage one Meaningful Use). The NV-HIE Board of Directors recently hired it's initial Chief Executive Officer and is gearing up to take over full management of the State HIE governance and technical operations at some point in the near future. This nonprofit business organization will develop, implement and operate the statewide HIE system (NV-HIE), and will be accountable to the State-Designated Entity (DHHS) via a governance and operational management structure. Again, these initiatives are driven by ARRA and the HITECH Act.

The results of Nevada's Health IT Statewide Environmental Scan and Assessment indicated that approximately three-fourths of Nevada's providers have or will have an EHR implemented by 2015. Nevada's intent is to provide HIE capability for all providers, with priority given to those providers eligible for EHR incentive payments, and facilitate early connectivity through the use of DIRECT services if and where needed throughout the state.

Some providers may choose to delay EHR adoption for financial reasons. At this time, there is no reason to believe that this number would be significant enough to impede implementation of the state's overall HIE strategy.

Central to this project is improvement in patient care and mitigation of medical errors and reduction of unnecessary and duplicate testing. This includes an overall improvement in the patient experience, medical outcomes, efficiencies in services, and overall improvement in the statewide health care delivery and health information sharing environment. Patient safety is a central objective as well. The state will develop a plan to engage patients directly, at an appropriate point or points, to enable and encourage them to play an active role in their care and the care for their families. This will be done in partnership with primary care providers and in cooperation with payors, where appropriate. As part of the state's overall HIE strategy, it is proactively orchestrating patient/consumer outreach activities and suggestions to smaller organized state HIE related groups to do the same.

With this plan as the guide, the NV-HIE governance and operational entity will play the lead role in standing-up the statewide HIE system and overseeing standards, policies, and day-to-day operations immediately following statewide deployment of NV DIRECT in May of 2013.

The intent of this document continues to be to satisfy the requirements as defined by the ONC's State Health Information Exchange Cooperative Agreement Program and therefore establishes the following immediate and already in-progress actions:

- Develop the State HIE governance and operational structure based on a sound business and financial sustainability model that will eventually eliminate any dependence on state and federal funding.

- Create an HIE infrastructure that leverages existing technology as available and is compatible with evolving initiatives and connectivity expectations of ONC and the eHealth Exchange.
- Deploy statewide HIE services that will:
    - Deploy statewide eHealth Exchange connectivity capabilities for any and all providers in need of this service(s) to facilitate early adoption of the statewide HIE, and to meet Stage 1 meaningful use as needed;
    - Enable meaningful use for all providers in Nevada, including and especially those Medicaid and Medicare providers eligible for incentive payments;
    - Facilitate better information for improved care outcomes;
    - Support population and public health initiatives and interactions;
    - Facilitate a cooperative health information sharing environment across public and private sectors; and
    - Provide the necessary governance and operational structure through the sub-recipient agreement with the Nevada Health Information Exchange (NV-HIE) nonprofit entity.

## 4.1 NV-HIE Vision

The NV-HIE vision continues to be to establish a sustainable statewide HIE business that delivers an information exchange capability and encourages broad use of health information services to improve and innovate the delivery of wellness and care to individuals in the state. The information exchange capability will enable the sharing of health care data across organizational boundaries (inter- and intra-state lines) and will eventually be shared with consumers to improve patient safety, security, quality, and cost.

The State of Nevada supports a resident population of approximately 2 million, with a transient population that reaches as much as 40 million or more. In addition to supporting native, resident Nevadans, the NV-HIE will also support this transient population that comes into the state as a result of the gaming and tourism industry. For this transient population, HIE services are essential to expedite routing and delivery of accurate information and enabling quick, timely treatment.

## 4.2 NV-HIE Goals and Objectives

The goals of the state are to:

- Enable care delivery innovations and efficiencies.
- Improve health care quality and outcomes.
- Improve access to care services.
- Improve patient safety.
- Enhance public health and disease surveillance.
- Control and economize the cost of health care.
- Reduce health disparities.
- Facilitate open and transparent operations.

The objectives related to these overarching goals are to:

- Provide equal access for underserved and rural/frontier populations as well as those in the urban areas.

- Effectively manage Cooperative Agreement resources as a one-time investment and enable long-term value.
- Establish a HIE business that is operationally feasible, achievable, and sustainable within the state.
- Help ensure HIE capabilities are available to enable meaningful use outcomes for health systems and providers.
- Facilitate adoption of health information services across relevant stakeholder organizations, including providers in small practices, across a broad range of uses and scenarios.
- Proactively foster innovation and adapt to emerging trends, standards and developments, both locally and nationally.
- Protect the privacy and security of identifiable health information and while enabling patient consent.
- Facilitate care quality and meaningful use reporting and measurement.
- Implement an HIE platform across the state in a phased approach, focusing on specific milestones and incremental and measurable successes to help ensure ONC requirements are fulfilled by 2014.
- Employ Nevada Open Meeting Law to ensure transparency and openness about policies, procedures, and technologies that directly affect individuals and/or their individually identifiable health information, including how that individually identifiable health information is collected, used, and disclosed and whether and how they can exercise choice over such collections, uses, and disclosures, in compliance with federal and state laws.
- Provide individuals with a reasonable opportunity and capability to make informed decisions about the collection, use, and disclosure of their individually identifiable health information, in compliance with federal and state laws.
- Ensure that individually identifiable health information be collected, used, and/or disclosed only to the extent necessary to accomplish a specified purpose(s) and never to discriminate inappropriately, in compliance with federal and state laws, including HIPAA and Nevada Revised Statutes (NRS) 439.581-595.
- Ensure accountability to the State Health Information Technology Authority through appropriate monitoring and other means and methods for reporting and mitigating non-adherence and breaches, in compliance with state laws, regulations and policies. This will also be managed through appropriate and compliant participant on business associate agreements. Other state-level technical certification and compliance expectations of participants and stakeholders will also be put in place.

## 4.3 NV-HIE Strategic Tenets

While there is more work to be done, recent exchanges with major stakeholders across the state's health community has led to the identification of localized priorities for HIE services and key elements of a business plan that focus on meeting the needs of health care providers, payors, patients, consumers, and employers. Many organizations within the community embrace these ideals and continue to move towards the electronic exchange of health information as key partners and participants.

The state's HIE plan is based on a set of core strategic tenets, which guide the entirety of the plan and the approach to its implementation. These strategic tenets are described in the following subsections.

### 4.3.1 Financial and Operational Sustainability

Given the state's financial situation, it is essential that the HIE be delivered by an organization that will be financially independent of federal and state funding beyond what is being made available via the ARRA HITECH and ARA programs. As such, prior any new or extension contracting for technologies and implementation services, this state plan defines a business plan that articulates potential revenue streams that might fund the initial implementation (beyond that being made available through the Cooperative Agreement and other federal programs) and ongoing sustainment of the operation of the HIE and supporting business functions (e.g., governance, communications, financial management, deployment, adoption, innovation, and any outreach and adoption efforts, etc.). The NV-HIE, a nonprofit governance and technical operations organization has contracted with the state for the provision of the HIE services based on a business model considered to be viable and sustainable.

Given the importance of the HIE services and the agreement made within the Cooperative Agreement, it is essential that the state create and verify a HIE business model that, as properly managed, will help ensure that the nonprofit organization will be a viable business on an indefinite basis. Regardless of the HIE technical solution, if the business fails due to an invalid business model, then the state will not have an operational HIE platform.

Successful deployment and adoption of the Nevada DIRECT Secure Messaging Service (NV DIRECT) initiative beginning May 2013, will be the first step of NV-HIE approach in achieving long-term sustainability. This initiative will onboard 200 providers by early summer 2013, and provide them the ability to achieve Stage 1 meaningful use through the electronic sharing of patient care summaries, structured lab results, and potentially, electronic prescribing. It is anticipated that these providers will be the first participants in the statewide HIE system to be deployed.

To be a sustainable business, there must be quantifiable opportunities in the health care delivery value chain for all stakeholders of the HIE (e.g., care cost reductions, administrative efficiencies and cost saving, new revenue streams, etc.). These value chain opportunities will be represented within the business model to be agreed with the stakeholders/customers of the HIE. Within the business model, each opportunity will be converted into an estimated revenue stream. Stakeholders/customers will pay into the HIE business in one of three ways: message usage, subscription, or a hybrid of usage and subscription.

The formulation of the NV-HIE business model for sustainability is based on health needs and economics of the state (e.g., costs, volumes, etc.). The state will facilitate workshops and other appropriate outreach with key stakeholders (e.g., hospital, payor, PCPs, diagnostics, e-Prescribing services, etc.), and health economic research will be conducted to iteratively develop the required business model agreements.

During the earlier State environmental scan and assessment **(see Appendix A-Nevada Health Information Technology Statewide Assessment)**, the state evaluated the extent to which the right stakeholders might be engaged in the planning process and identified gaps in participation. Interviews were conducted with potential stakeholders and participants. Answers to specific questions regarding stakeholder involvement has shown participants agreed that the appropriate stakeholders have been involved in state-level planning. It was also noted that it would be beneficial to increase participation by health plans, local/county health authorities and agencies providing direct services, and ancillary service providers. Stakeholder groups generally include:

- All licensed health care providers in the state and health care providers in other states serving state consumers.
- The U.S. Department of Health and Human Services, the Centers for Medicare & Medicaid Services, the Centers for Disease Control and Prevention, and ONC.

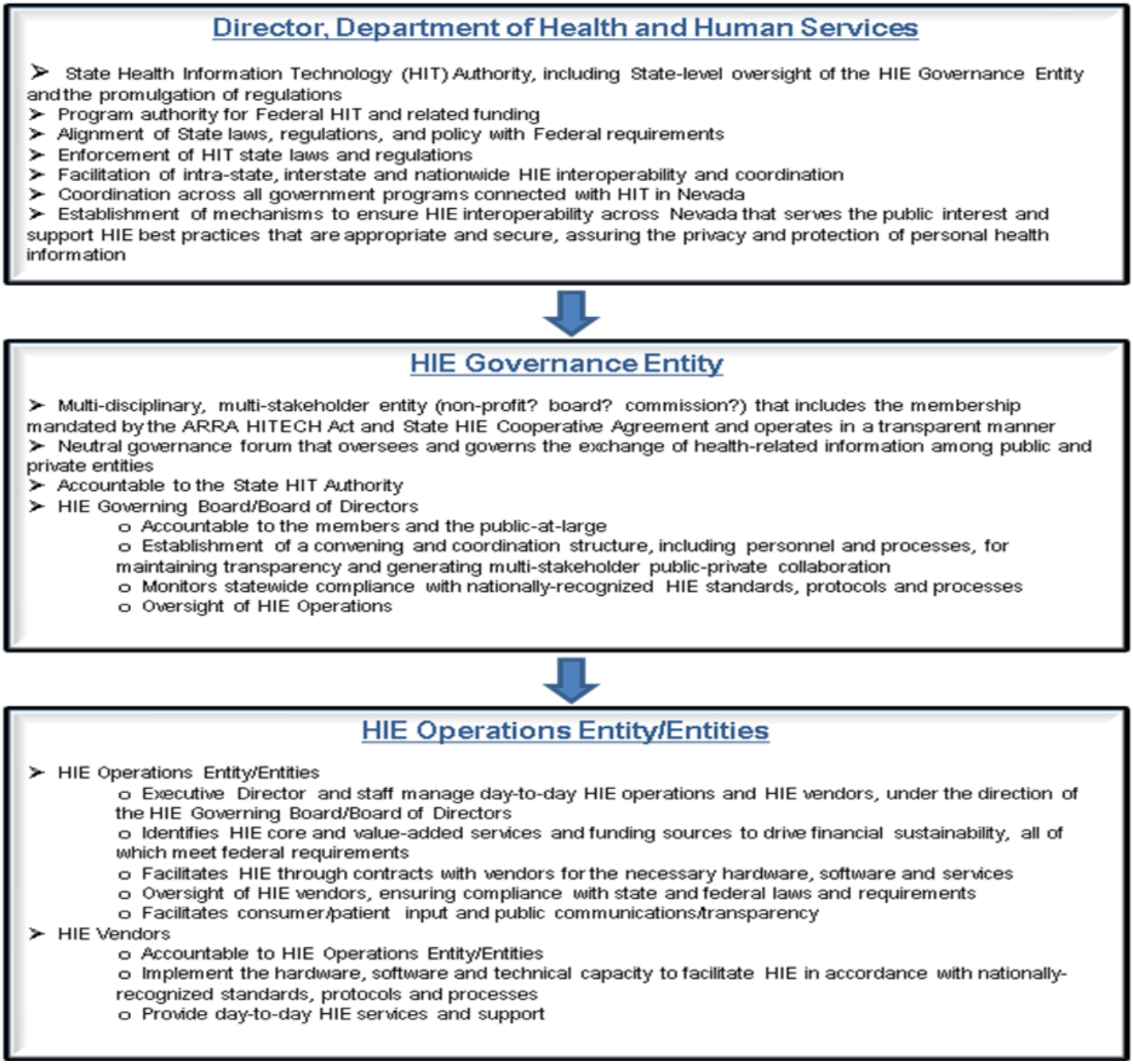
- All health care consumers in Nevada.
- Associations, consortiums, and work groups.
- Health plans, including managed care.
- State, county, and local government agencies.
- All military and Veterans' Affairs medical services.
- Universities and colleges.
- HIT, HIE, and EMR vendors.
- Future HIEs operating in Nevada or neighboring states.
- Indian health clinics.
- Indian tribes.
- The Indian Health Board of Nevada.
- Nevada's Regional Extension Center (HealthInsight).
- eHealth Exchange.
- Department of Defense.
- Veteran's Administration.
- Clinical laboratories.
- Lobbyists and advocates.

A more specific listing of key stakeholders can be found in a table located in **Section 6—NV-HIE Stakeholder Coordination and Collaboration.**

### 4.3.2 Establish Multi-Stakeholder Governance

The NV-HIE program will be governed through a public-private partnership with the state's 501(c)3 nonprofit governance and technical operations organization that will foster close and effective collaboration between the public and private sectors. This governance model recognizes and builds on many of the current collaborations across the state. The governance model is designed to enhance and uphold the public's trust through transparent (publicly posted, easily understood, and readily available) and effective use of public funds.

**Figure 4-1. Proposed NV-HIE Governance Structure***




**Pursuant to the ARRA HITECH Act and State HIE Cooperative Agreement requirements.*

### 4.3.3 Establish a Privacy Framework to Guide the Development of a Secure HIT Environment

In accordance with the HHS Federal Privacy and Security Framework, HIPAA, ONC Program Information Notice 003 (ONC-HIE-PIN-003), and other applicable guidelines and regulations, including NRS 439.581-595 passed as part of Nevada Senate Bill 43 (SB43) in 2011, the state will deploy a robust privacy and security framework.

#### 4.3.3.1 Privacy and Security Framework Requirements to be Implemented

The framework will provide consumers and HIE stakeholders with the information and direction for understanding and controlling access to and sharing of a patient's individually identifiable health information (IIHI). In broad terms, points addressed and managed within the NV-HIE Privacy and Security Framework will include, but may not be limited to:

- The sources of the patient's IIHI within the HIE (i.e., the patient's PCP, specialists, hospitals, other HIEs, and other data sources);
- The significance of the relationships of the sources of the IIHI to the patient (e.g., patient-provider relationship and level of access based on the existence or absence of that relationship);
- Individuals and organizations that will have access to a patient's IIHI;
- Purpose and use of a patient's IIHI (i.e., patient care, billing, urgent care, emergency response, etc);
- Level of assurance that any access and/or uses of a patient's IIHI falls within the patient's continuum of care;
- Patient control over who has access to and use of their IIHI (i.e., consent management);
- Patient choice to opt into or out of the statewide HIE system at their discretion;
- Requirements for notifications, remedies, and appropriate corrective actions in the event of a breach of patient privacy (e.g., improper access or release of IIHI); and
- Requirements for acknowledgements and agreements for haring IIHI (e.g., signed consent forms).

Nevada plans to utilize state laws and regulations to ensure alignment with the federal framework, with enforcement carried out by the State HIT Authority and by the State Attorney General. More detailed information is provided in **Section 11 - Legal/Policy Approach**. Also, the NV-HIE technical architecture (please refer to **Section 10 - Technical Architecture and Approach**) includes data access audit trails to support the principles of the federal framework.

In addition to maintaining compliance with all applicable laws, and alignment with applicable requirements and guidance directives, the state may adopt industry-driven, common security framework(s), and may do so as the situation warrants and at its discretion. For example, one such industry driven approach is the HITRUST Alliance common security framework (CSF) and certification processes (this is not an endorsement, simply an example of other security framework and practices available in the market).

Nevada OHIT intends to maintain an optimal HIT/HIE operating environment, with the openness to adopt and/or comply with new regulations, standards, and leading practices as they emerge – and to maintain compliance with new laws as they are introduced throughout the life of this HIE program.

#### 4.3.3.2 Privacy and Security Points Covered in SB 43

Nevada Senate Bill 43 was signed into law in June 2011, by Governor Brian Sandoval, codifying the Nevada Health Information Exchange System into NRS 439.581-595. In general, Nevada laws regarding IIHI are directly aligned with the ONC recommendations issued in ONC-HIE-PIN-003, and incorporate strong controls

for privacy, security, confidentiality, and patient choice. SB 43 provisions dealing with privacy, security, confidentiality and patient choice include:

- Requiring that patients provide consent to have their PHI shared electronically. Neither a patient or that patient's IIHI are part of any queries or other data transactions within the statewide HIE system until the patient specifically provides consent to do so. The patient is permitted to segment their data, ensuring that they can choose what PHI providers are allowed to access.
- Ensure that electronic health records and the statewide health information exchange system are secure.
- Maintain the confidentiality of electronic health records and health-related information, including, without limitation, standards to maintain the confidentiality of electronic health records relating to a child who has received health care services without the consent of a parent or guardian and which ensure that a child's right to access such health care services is not impaired.
- Ensure the privacy of individually identifiable health information (IIHI), including, without limitation, standards to ensure the privacy of information relating to a child who has received health care services without the consent of a parent or guardian.
- Obtain consent from a patient before transmitting the patient's health records to the health information exchange system, including, without limitation, standards for obtaining such consent from a child who has received health care services without the consent of a parent or guardian.
- Make any necessary corrections to information or records included in the statewide health information exchange system, either as a result of the patient informing their provider of any mistakes, or providers and administrators noting and correcting such errors – and that the patient be notified in any such event of error and/or corrective action(s).
- Notify a patient if the confidentiality of information contained in an electronic health record of the patient is breached.
- The privacy, confidentiality, and security standards prescribed must include, without limitation:
    - Training requirements for persons who work with electronic health records or the statewide health information exchange system;
    - Requirements for the creation, maintenance and transmittal of electronic health records;
    - Requirements for protecting confidentiality, including control over, access to and the collection, organization and maintenance of electronic health records, health-related information and individually identifiable health information (IIHI);
    - Requirements for the manner in which the statewide health information exchange system will remove or exclude health records or any portion thereof upon the request of a person about whom the record pertains and the requirements for a person to make such a request;
    - A secure and traceable electronic audit system for identifying access points and trails to electronic health records and health information exchanges; and
    - Any other requirements necessary to comply with all applicable federal laws relating to electronic health records, health-related information, health information exchanges and the security and confidentiality of such records and exchanges

Additional information regarding the history and full text of SB43 can be found at http://www.leg.state.nv.us/Session/76th2011/reports/history.cfm?ID=86

### 4.3.4 NV-HIE Development

Through ongoing analysis, studies like the **Nevada HIE Environmental Scan and Assessment and its periodic update**, and open communication with and feedback from stakeholders, the state has developed a thorough understanding of the needs of the state and is prepared to assess the state taking into consideration the successes and challenges of other HIEs from around the country. The state understands that a successful HIE not only depends on balanced, robust technology platform(s), but also must have a good business base, which is emphasized throughout this plan.

To be successful and sustainable, the NV-HIE must:

- Support high quality, safe, and efficient health care services;
- Deliver HIE-based information services to all providers operating in the state including and especially Medicare and Medicaid providers who will be eligible for incentive payments;
- Ensure the privacy and security of personal health information, both stored and exchanged;
- Enable intra-state, inter-state and nationwide health information exchange;
- Have a governance structure that is transparent, includes stakeholder participation, and is in compliance with all state and federal laws;
- Support meaningful use requirements; and
- Implement a business model that is financially viable and sustainable without state general funding.

The HIE governance and technical operations organization will collaborate closely with the DHHS Director, State HIT Coordinator, and State Medicaid Director, State Health Insurance Exchange Director, and other agency heads as may be identified, to support initiatives to meet the requirements of the five domains of the HIE Cooperative Agreement and of the SMHP roadmap. The entity will establish the policies governing statewide HIE, and maintain operational Directives consistent with state policy and standards.

The NV-HIE must first determine its governance structure and a sustainable financial model, and then develop HIE technical infrastructure. To this end, recommendations were included in the final report of the Nevada HIT Blue Ribbon Task Force submitted to then-Governor Jim Gibbons on November 30, 2010. Senate Bill 43, passed by the 2011 Nevada Legislature, contains the enabling legislation to implement Nevada's approved State HIT Plan (see **Appendix B— Senate Bill No. 43**)..

Statewide HIE design characteristics have been defined and prepared for integration with the results of the HIE gap analysis (see **Appendix C—Addendum 1 to Health Information Technology Statewide Assessment – Health Information Exchange Gap Analysis**). From there, the state, and subsequently the NV-HIE governance and technical operations organization can determine a feasible, flexible and sustainable statewide HIE architecture. Once that has been determined, implementation can begin in accordance with NRS 439.581-595. Beginning with deployment of NV DIRECT, followed by the implementation of a full and robust HIE. The state recognizes that it does not have adequate human resources to gather the necessary due diligence, and plans to utilize contractors to augment OHIT staff, as appropriate.

The following subsections address component strategies for the development of the NV-HIE.

#### 4.3.4.1 Utilize Hybrid NV-HIE Infrastructure Model

The NV-HIE will be hybrid infrastructure model consisting of partnerships with HIE businesses that are or will operate within Nevada and neighboring states, as well as a separately developed statewide HIE platform. This strategic approach enables commercial HIE/RHIO businesses to thrive within the state while the NV-HIE provides the "HIE of last resort" to ensure equal access to health information services for all citizens and health consumers located in the state, and connectivity to the eHealth Exchange Gateway to those HIE participants within the state requiring such connectivity for interstate interactions and with federal partners including CDC, IHS, Veterans Administration, and DoD).

For the development of the statewide HIE infrastructure, the NV-HIE Business will build and implement the health information services and supporting technical infrastructure needed to address the extreme diversity of the population density of the state. Nevada's urban and suburban population is fairly consistent with other states. By contrast, the populations in the rest of the state are spread across vast areas of land that ranges from rural to frontier. It is this population that the NV-HIE will ensure consistent access to the envisioned health information services essential to the unique care delivery needs of these areas.

Within the NV-HIE infrastructure, the NV-HIE organization will implement the core information services that will enable the delivery of ARRA objectives including:

- Meaningful use (i.e., access to immunization registries);
- Gateway services to communicate across existing systems within hospitals, pharmacies, labs, and health care providers;
- Gateway services to communication with other statewide HIEs or DIRECT connections to providers in these states;
- Gateway services to accommodate interoperability with eHealth Exchange; and
- Gateway services to enable reporting and exchange with public and population health entities.

#### 4.3.4.2 Integrate Infrastructure with Existing Service Providers

The state realizes and appreciates the history and resources of existing and capable entities in Nevada and acknowledges that these capabilities will be accounted for in the NV-HIE business and infrastructure models. By leveraging these organizations and entities, both the state and the future NV-HIE Business will move forward quickly with their respective missions, rather than having to first build relationships from the ground up. The types of organizations critical to the success of this implementation consist of, but are not limited to:

- Health care providers (e.g., EHR incentive-eligible physicians, other primary care doctors/practices, dentists, hospitals, etc.);
- Nevada Medicaid;
- Health plans (e.g., HMOs, PPOs, ERISAs and PEBP, etc.);
- Patient consumer organizations (e.g. ACLU of Nevada, AARP, State Office of Consumer Health Assistance, and Health Insurance Plans, etc.);
- Education and research entities (e.g., NSHE, Nevada Cancer Institute, Nevada State College, and Touro University, etc.);
- Public and federal health agencies (e.g., State Health Division, County health authorities, Veteran Affairs, Indian Health Service, DoD and CDC, etc.);

- Broadband projects and providers (i.e., the Nevada Hospital Association, the Nevada State Library and Archives, the Nevada Broadband Task Force, and broadband service providers); and
- Technology vendors to be identified in later phases.

The infrastructure strategy focuses on the three core fundamental capabilities of e-Prescribing, receipt of structured lab results, and sharing patient care summaries across unaffiliated organizations. To achieve this, the state will continue to build upon existing solutions and relationships that provide these services today, as well as provide DIRECT Messaging connectivity.

For example, Quest Diagnostics and LabCorp account for the vast majority of lab transactions across the state. Leveraging the existing relationships and processes in place today is important to facilitating rapid adoption. The desire to leverage existing relationships will be balanced against the willingness and ability of these organizations to work effectively within the NV-HIE business model. An assessment, certification, and attestation process will be in place in order to qualify capable organization to participate in the NV-HIE at the appropriate capable level(s) (i.e., DIRECT and/or full robust HIE).

#### 4.3.4.3 Develop and Implement a NV-HIE Infrastructure

The NV-HIE 501(c)3 nonprofit governance and technical operations organization will deploy a statewide HIE infrastructure that will support care coordination, patient engagement and population health improvement. The NV-HIE infrastructure will be based on architecture that is open and utilizes standardized functions within a Service Oriented Architecture (SOA) framework that is compliant with industry standards as well as the state's implementation of Medicaid Information Technology Architecture (MITA).

The state will work with the NV-HIE organization in a public/private partnership to design, develop and implement the infrastructure and core HIE information services needed to create the NV-HIE. The development will be done in cooperation with the private sector to ensure enabling integration that leverage current capabilities. In addition, the resulting NV-HIE will include an electronic reporting infrastructure as well as capabilities to support future health information service capabilities enabling continuous improvements to the quality of care provided to the Nevada population while reducing the cost of that care.

### 4.3.5 Patient/Consumer Engagement

While the initial phases of the NV-HIE will likely exclude services that enable patients/individuals to have direct access to the NV-HIE information services, during the early phases, the patient/consumer engagement will focus on education. Initial education will likely be directed towards views on how NV-HIE increases integration of care for children and those with disabilities and improves outcomes, as well as issues such as guarding private data, information-sharing standards, and personal responsibility.

These initial efforts of patient engagement will be essential to the patient's informed consent and opt-in model for the NV-HIE patient data information governance covered within SB 43.

In a second round of education/communication, content will address how personal health records factor into overall health management and the best ways to use personal health records to advance consumer empowerment and improvement of outcomes.

From an overarching perspective of patient/consumer engagement, it is important to take account of the future requirements that patient/consumer engagement will entail. These requirements will have a direct impact on state statutes, organization policies, information governance, health information service design, the business model of the NV-HIE organization, NV-HIE communications, and NV-HIE infrastructure.

A critical, early priority will be to define what specific patient/consumer engagement objectives can be accomplished as rapidly as possible following the implementation of the core services. Based on these objectives, the state is developing an initial strategy that is focused on patient/consumer engagement. Along with the strategy, the state will develop initial policy levers that incentivize information exchange and create demand for HIE services. Encouraging entrepreneurship and a burgeoning competitive commercial marketplace for secure and sound HIE products and services will draw patients into the process of effective use of NV-HIE and will likely motivate patient engagement more effectively than broad-based education programs.

As part of this patient/consumer engagement definition, key metrics and measurement tools will be added to assess progress toward those objectives. Importantly, to support the objective of long-term financial sustainability, each possible patient/consumer interaction will be assessed in terms of costs (implementation and operational) and offsetting revenue streams (sources, metrics, relative reimbursement costs).

As the state refines its patient consent format based on state and federal law, it can make each point of care a point of patient engagement, where the patient's physician guides the patient in understanding and participating in the promise of NV-HIE. At the same time, the NV-HIE organization's privacy and security function must maintain a focus on assuring safe and secure access to records by only authorized providers. Broad reach of consumers is a long-term effort that requires a multi-pronged outreach strategy. For NV-HIE, it will begin in advance of full implementation and be an integral part of physician engagement.

The NV-HIE organization will be responsible for refining and implementing these services and related operational processes.

#### 4.3.6 Create a Local Workforce to Support NV-HIE and Related Health IT Initiatives

Implementation of the NV-HIE and related health ITinitiatives on the scale anticipated within the state will require people with skill sets that are in demand both inside and outside the state. Nevada's statewide economic development plan cites the health care sector as a key area for economic and workforce development (https://nvsos.gov/Modules/ShowDocument.aspx?documentid=2298), and it includes health IT. "Advancing the deployment of health information technology will not only improve the quality and efficiency of health care for Nevadans, it will also offer economic and workforce development opportunities," said Governor Sandoval. "Over the next 5 years, Nevada will require both private sector health information technology businesses and additional trained workforce to implement, service and maintain the hardware and software for the EHR and HIE systems. This is another facet of the technology sector that can help diversify and strengthen the state's economy."

The State HIT Coordinator is an appointed member of the Governors Workforce Investment Board – Health Care and Medical Services Sector Council, and expanding the health IT workforce is one of its top priorities. The College of Southern Nevada (CSN) participated in the Community College Consortia to Educate Health IT Professionals Program, and CSN is also a member of the Health Care and Medical Services Sector Council. The mission of the Northern Nevada Development Authority (NNDA), one of Nevada's designated regional economic development authorities, includes supporting EHR adoption, HIE implementation, and Health IT workforce development. The State HIT Coordinator is Vice Chair of its Health Care Advisory Action Committee. Through other partnerships with Nevada universities and commercial organizations, the state will help to advance and increase the number of training programs to deliver the number of graduates that will be required to realize the vision of HIT/HIE.

#### 4.3.7 Monitor Success

While the governance of this NV-HIE has been and will continue to be designed to maximize transparency and public/private collaboration, a comprehensive set of measures and monitoring programs will be required to

ensure the full benefits of NV-HIE are being realized and effectively communicated with ONC. To this end, the state will be following the guidance set forth in ONC-HIE-PIN-003, specifically the sections pertaining to Program Evaluation and Tracking Program Progress.

#### 4.3.7.1 Program Evaluation

To address Program Evaluation, the State has developed the required *Program Evaluation Plan* which is attached as Appendix I to this State HIT Plan. Please refer to that document for the approach to be taken.

#### 4.3.7.2 Tracking Program Progress

The state will be tracking progress on a number of dimensions in response to various stakeholders including ONC, the Governor, and various Nevada stakeholders. The objective is to demonstrate the achievement of practical measures in relation to the financial and time investment made by the stakeholder groups and the SHIE funds.

For the SHIE monitoring, the following table (modeled on requirements from ONC-HIE-PIN-003) depicts the progress being achieved against the defined targets.

| | Report June 2013 | |
|---|---|---|
| **Program Priority** | **Status as of December, 2012** | **Target for December, 2013** |
| **1. % of pharmacies participating in e-prescribing** | 97.6% | 98% |
| **2. % of labs sending electronic lab results to providers in a structured format[1]** | 97%<br>(91 of 94) | 97%<br>(91 of 94) |
| **3. % of labs sending electronic lab results to providers using LOINC** | 97%<br>(91 of 94) | 97%<br>(91 of 94) |
| **4. % of hospitals sharing electronic care summaries with unaffiliated hospitals and providers** | 20.4% | 22% |
| **5. % of ambulatory providers electronically sharing care summaries** | 8.13% | 22% |
| **6. Public Health agencies receiving ELR data produced by EHRs or other electronic sources in HL7 2.5.1 format with LOINC and SNOMED** | No | No |
| **7. Immunization registries receiving electronic immunization data produced by EHRs in HL7 2.3.1 or 2.5.1 formats using CVX codes** | Yes | Yes |

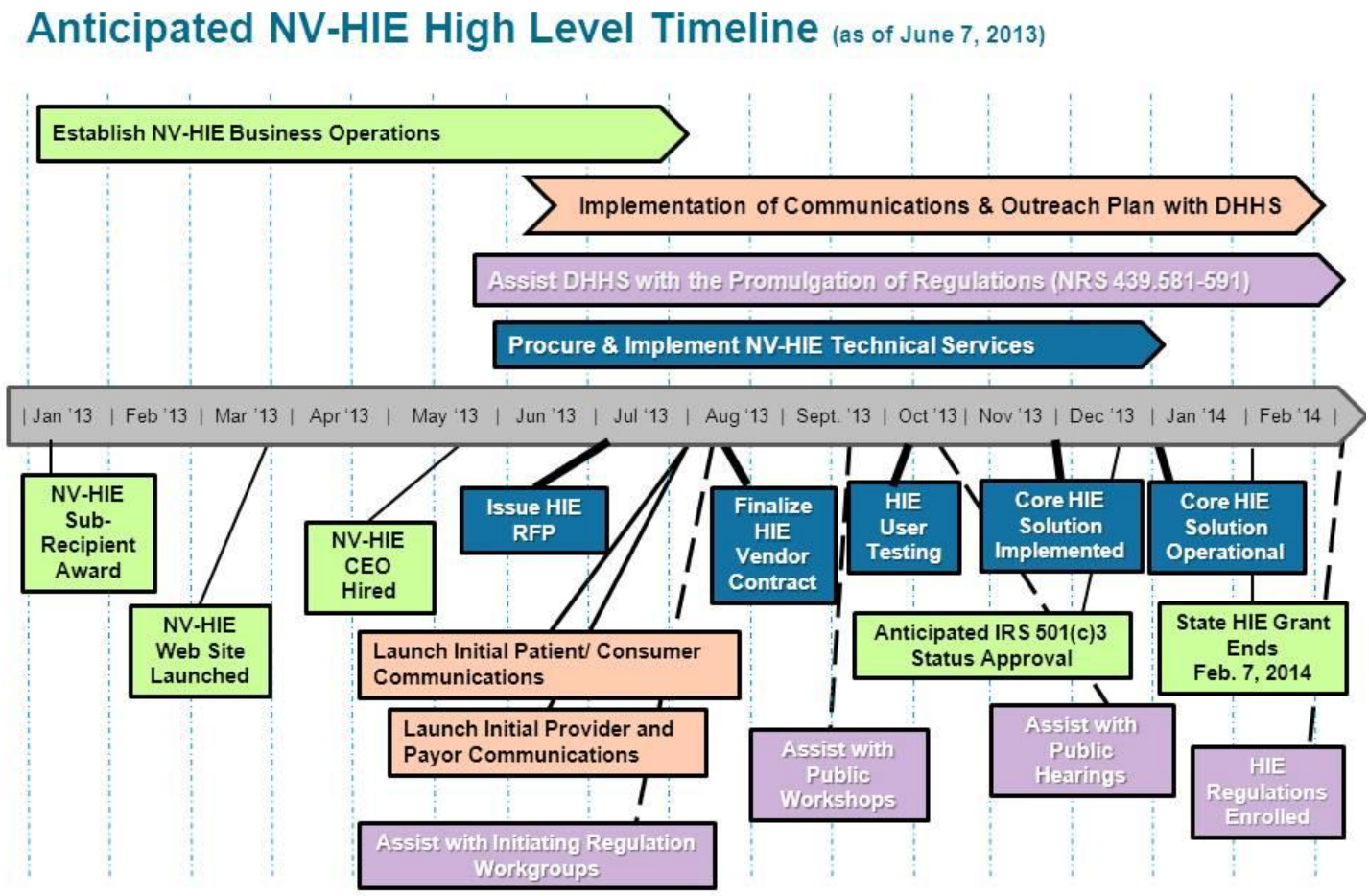
[1] **Structured format:** Documentation of discrete data using controlled vocabulary, creating fixed fields within a record or file, or another method that provides clear structure to information (is not completely free text).

| | Report June 2013 | |
|---|---|---|
| **Program Priority** | **Status as of December, 2012** | **Target for December, 2013** |
| **8. Public Health agencies receiving electronic syndromic surveillance data from hospitals produced by EHRs in HL7 2.3.1 or 2.5.1 formats (using CDC reference guide)** | Nevada Public Health Authorities do not accept syndromic surveillance data, and there are no plans to do so. | Nevada Public Health Authorities do not accept syndromic surveillance data, and there are no plans to do so. |
| **9. Public Health agencies receiving electronic syndromic surveillance ambulatory data produced by EHRs in HL7 2.3.1 or 2.5.1 formats (using CDC reference guide)** | Nevada Public Health Authorities do not accept syndromic surveillance data, and there are no plans to do so. | Nevada Public Health Authorities do not accept syndromic surveillance data, and there are no plans to do so. |

#### 4.3.7.3 Program Plan Monitoring

Relative to monitoring program progress against the plan, the state and, ultimately the NV-HIE, will be tightly monitoring and controlling the work defined in the program plan as depicted over the course of this first year of NV-HIE engagement, development, implementation, and ongoing strategy monitoring and evolution, the time-line diagram below depicts the major tasks/milestones for the NV-HIE. As it has been over the course for the past year, and through regular status review of the state's Cooperative Agreement Program CAP, this plan will be continually discussed and shared with ONC to validate compliance and collaboration at the critical points of collaboration with the eHealth Exchange, as well as to monitor and account for the critical early stages of progress and success required for the long-term viability of the NV-HIE project. This plan will continue to be updated and resubmitted to ONC on an annual basis or as otherwise warranted or required. NOTE: Appendix K contains the detailed program plan.

**Figure 4-2. NV-HIE Major Milestones and Timeline**




## 4.4 HIE Policy Development

Before a statewide HIE policy could be developed, the State conducted a Regulatory and Policy Inventory (HITRI) to verify state regulatory and policy harmonization with HITECH requirements (see **Appendix D—State of Nevada Health Information Technology Regulatory and Policy Inventory**). Completed August 23, 2010, the inventory was conducted by an individual with extensive experience analyzing laws and developing health policy and legislation. DHHS/OHIT used the results to justify and develop the agency omnibus Health IT bill that was passed during the 76th Session of the Nevada Legislature, and signed by the Governor on June 13, 2011.

The HITRI reviewed existing provisions of the Nevada Revised Statutes (NRS) as related to HITECH regarding four key topics:

- Privacy and security of personal health information.

- Electronic Health Records (EHRs).
- e-Prescribing.
- Health Information Exchange (HIE).

The objective of the HITRI was to identify regulatory and policy barriers and gaps for EHR implementation, achieving meaningful use, HIE patient consent and privacy, and enabling HIE. Also included was the research and review of relevant HIT/HIE legislation enacted or proposed by other states.

The HITRI did not include the Nevada Administrative Code (NAC), nor did it consider the recently issued rules for meaningful use. Key HITRI findings included:

- Lack of a comprehensive framework in place to address health information and health IT issues.
    - Existing provisions are scattered throughout the NRS chapters and have often been adopted and amended independently of each other.
    - Electronic health information issues, for the most part, are not specifically addressed by the statutes.
- Existing provisions will need to be consistent with new ones.
- The designation of a State HIT Authority, with the authority to promulgate the necessary regulations, seems prudent for ongoing HIT/HIE regulatory and policy harmonization given the rapidly changing and evolving nature of HIT, HIE and federal rules.
- HIT/HIE:
    - Statewide infrastructure development and implementation requires state-level coordination and possible licensure.
    - Additional regulation needed to ensure PHI privacy and security compliance.
- EHRs:
    - Certain existing pharmacy provisions are barriers to e-Prescribing, and will need to be amended.
    - Provisions may be necessary to support meaningful use, to stipulate the use of federally certified EHRs and prevent unauthorized access.
    - Existing provisions may need to be amended to clarify EHR retention and accessibility requirements.
- Privacy of EHRs:
    - Provisions may be necessary to prevent personal and/or medial identity theft via medical records.
    - HIE patient consent provisions will need to be clearly established.
- Personal health data storage/health record repositories:
    - Provisions may be necessary for the creation of possible new business entities, including potential licensure and regulation.
    - Provisions may be necessary regarding data retention, accessibility and authorized access.

While the HITRI represents a general statewide assessment of health IT regulatory and policy issues, a comparable Medicaid-specific inventory was not done, due to time and fiscal constraints. State Medicaid plans to use the results of this inventory in determining further harmonization of its own NRS regulatory provisions and program policies necessary to meet Medicaid health IT requirements.

In its report to then-Governor Gibbons dated April 30, 2010 (http://dhhs.nv.gov/HIT.htm), the Health IT Task Force expressed concern that as HITECH rules/regulations were issued, there could be material impact on state laws and regulations. Specifically noted were four variables, whose outcomes may impact HIE regulatory and policy development and require additional state legislation:

- ONC's revision of the National Health IT Strategic Plan;
- FTC decisions around the safeguarding of personal health information contained in Personal Health Records (PHRs);
- NIST interim regulations for standards relating to health information security and the use of mobile devices for remote data access; and
- FCC's revision of the National Broadband Plan, which is expected to include the use of wireless devices and applications for health care.

DHHS/OHIT continues to monitor these variables and update any plans and initiatives accordingly.

As this plan continues, the state will formulate policies for implementing statewide HIE that address organizational-level business practices affecting privacy and security policies and data sharing. The state is engaging in various organizational change management (OCM) practices to help identify such areas where the state, and any of the statewide HIE constituency that might require guidance in this area.

## 4.5 Health IT Adoption

The **Health IT assessment** identified key opportunities for OHIT, the Division of Health Care Financing and Policy (DHCFP), and HealthInsight (Nevada's Regional Extension Center) to collaborate and first bolster EHR adoption and increased utilization of by providers, followed HIE participation, including:

- Education and awareness activities:
    - Increase coordinated communication of state-level HIT/HIE efforts and activities with providers and consumers;
    - Provide more detailed information about HIE technology and infrastructure;
    - Ongoing education about the benefits of EHRs and HIE in clinical practice; and
    - Enhance provider awareness of the value of EHR adoption as a means of streamlining business processes and creating more efficient health care practices.
- Enhanced stakeholder participation through focus groups, public workshops, and/or hearings:
    - Minimize and mitigate rumors and misinformation;
    - Augment trust-building and buy-in efforts;
    - Obtain stakeholder feedback for HIE implementation and supporting meaningful use; and
    - Engage consumers to better understand their wishes and concerns.
- State-level marketing of the Nevada Regional Extension Center (REC):

  - Coordinated messages about the scope and value of the services offered by the REC;
  - Neutralize perceptions that the REC is competing with EHR vendors; and
  - Demonstrate integration of efforts to assist providers with meeting meaningful use.
- Additional possible strategies:
  - Explore non-general fund ways to offset initial EHR implementation costs;
  - Sufficiently address provider and consumer privacy and security concerns;
  - Assist providers with accurately calculating their Medicaid patient volumes; and
  - Determine the reason(s) that increased awareness does not always translate into increased engagement.

The State HIT Coordinator continues to work actively with the University of Nevada, School of Medicine (UNSOM) to include basic information about health IT, EHRs, and HIE into the medical school curriculum. UNSOM would like to be sure that when doing clinical field practice, the medial students have some familiarity with HITECH requirements. Since medical students are likely to be comfortable with and regular users of technology, they may also become de facto advocates for HIT/HIE adoption.

## 4.6 Nevada Health IT Blue Ribbon Task Force

In September 2009, then-Governor Jim Gibbons issued an Executive Order establishing the Nevada Health IT Blue Ribbon Task Force and appointed a diverse group of 20 key stakeholders and industry leaders, including representatives from Nevada Medicaid, Nevada's REC, health systems and providers, public health, insurance, payors, the university system, and consumers (see **Appendix E—Nevada Health Information Technology Blue Ribbon Task Force**). The mission of the Task Force was to provide oversight and guidance to DHHS/OHIT regarding HIT/HIE activities and initiatives, and to provide input to DHHS for developing the statewide HIE infrastructure. The State HIT Coordinator, State Medicaid Director and Nevada's REC provided regular updates regarding their respective HITECH-funded activities. In addition, DHCFP staff provided subject matter expertise to the Task Force and to the State HIT Coordinator. The Task Force finished its duties and was sunset on June 30, 2011.

The Task Force submitted required reports to (then) Governor Gibbons, in April and November 2010. Health IT legislation was proposed, resulting in Senate Bill 43 which was signed during the 2011 session of the Nevada Legislature and codified as NRS 439.581-595. HIE technical objectives and an HIE Governance structure were recommended, and continue to be included in this State HIT Plan.

Health IT Task Force meetings were conducted in accordance with Nevada Open Meeting Law and always held at one location in Northern Nevada and one location in Southern Nevada, connected via videoconferencing. As often as possible, the meetings were broadcast live over the Internet. DHHS maintains the Office of Health IT Web site: http://dhhs.nv.gov/HIT.htm, and the Task Force Reports to the Governor are available at: http://dhhs.nv.gov/Hit_TaskForce.htm.

The Nevada Health IT Blue Ribbon Task Force was charged with:

- Recommending policy and legislative actions;
- Encouraging coordinated and collaborative efforts with the private health care sector;
- Maximizing public and private partnerships for the development of a sustainable statewide health information infrastructure; and

- Providing a transparent forum for reviewing and discussing health IT and HIE issues, and suggesting potential solutions.

The DHHS Director and the State HIT Coordinator were staff to the Task Force and also served in an advisory capacity. Nevada's Medicaid Director was a member of the Health IT Blue Ribbon Task Force and two DHCFP Health IT Project Staff served on Task Force Subcommittees. This ensured ongoing health IT coordination at multiple levels within the state.

From its inception in 2009 to its sunset in 2011, the Task Force discussed issues related to the State HIE Cooperative Agreement and the development of this State Health IT Strategic and Operational Plan. Issues discussed included:

- An operationally and financially sustainable HIE technical infrastructure that leverages current assets and investments.
- An effective governance structure that complies with all state and federal laws, HIE and EHR barriers, privacy and security concerns, patient consent options, meeting Cooperative Agreement financial match requirements, workforce needs and readiness, broadband and connectivity barriers, and the impact of the state's fragile economy on HIE financial sustainability and EHR adoption.

The Task Force received assistance from MBA students from the University of Nevada, Reno (UNR) College of Business. The College's Dean and a Health Economics professor serve on subcommittees, and oversaw the due diligence research and analysis done by the students to assist the Task Force.

# 5 Nevada Health IT Statewide Environmental Scan and Assessment

There are two primary objectives of HITECH requirements that affect state administration of Health IT and HIE:

- Incentive payments through Medicaid for the adoption, implementation or upgrade, and meaningful use of Electronic Health Records (EHRs).
- State HIE Cooperative Agreement grants to establish or enhance the infrastructure necessary for the exchange of health information. Planning for Health IT and HIE initiatives in Nevada falls under the umbrella of the Nevada Department of Health and Human Services (DHHS), which includes the State's Medicaid Program and Office of Health Information Technology:

**DHCFP** is responsible for the administration of Nevada's Medicaid and CHIP programs. Through ARRA funding granted by the Centers for Medicare & Medicaid Services (CMS), DHCFP has developed a State Medicaid Health IT Plan (SMHP). This Health IT Plan describes the vision and roadmap for how Medicaid health IT efforts will work in concert with the state's health care system. Additionally, it describes the plan for providing incentive payments to eligible professional providers and hospitals for the adoption, implementation, or upgrade and meaningful use of EHRs. Nevada Medicaid's EHRs Incentive Program went live in August of 2012.

**OHIT** is responsible for administering the ARRA HITECH State HIE Cooperative Agreement through ONC.

While this plan does not yet address the specifics, it is acknowledged that the plan will likely be modified to incorporate the requirements of the Patient Protection and Affordable Care Act (ACA) as they become available. Until such time, Nevada will continue to implement the Act as required. For example, the Nevada Legislature passed enabling legislation in 2011, and the Silver State Health Insurance Exchange (SSHIX) has been established. The State HIT Coordinator has been a frequent evaluation panel member for the HIX establishment grant applications, which has provided insight on potential HIE-HIX collaboration, as required by the HIX establishment cooperative agreements. OHIT has initiated the process to determine the extent to which the SSHIX can leverage and utilize the capabilities of the Nevada statewide HIE system. Both have agreed to ongoing coordination and collaboration, particularly after operations have been established.

This environmental scan and assessment was the required lead-in research to prepare for this document. Since the requirements of the Medicaid Landscape Assessment and Health IT Environmental Scan were similar, OHIT and DHCFP were permitted by CMS and ONC to pool funding and conduct the assessment as a joint venture. In addition to being cost effective, this joint assessment supports ongoing coordination and alignment of state health IT efforts. For purposes of this report, **Health IT Assessment** is the term used to describe the environmental scan and assessment. The Health IT assessment provides a baseline status of representative EHR and HIE utilization by Nevada's health care community, identifies barriers and obstacles to EHR adoption and HIE utilization, assesses stakeholder readiness for further adoption, and provides recommendations for overcoming key barriers.

## 5.1 Nevada Health IT Adoption Assessment

The original statewide Health IT assessment, was done in the summer of 2010, a joint effort between Nevada Medicaid and OHIT with support from Nevada's REC. An abridged version, which was physician-focused, was completed in late 2012, to assess the current "state" of HIE in Nevada.

Data gathered for the original Health IT assessment provided a baseline status of representative EHR and HIE utilization by Nevada's health care community, identified barriers and obstacles to EHR adoption and HIE

utilization, assessed stakeholder readiness for further adoption, and provided recommendations for overcoming key barriers.

The Health IT assessment took a broad view of EHR adoption and HIE utilization (if any) by the provider community, planned readiness for future EHR adoption and HIE utilization, and barriers to adoption and use.

As a result of the assessment activities, it was clear that the state's provider community and other health care stakeholders generally support both the concept and value of EHRs and HIE. Providers are interested in understanding, and even adopting, technologies that offer potential benefits such as improved patient-centered care and efficiencies in the delivery and provision of health care.

Levels of EHR adoption and HIE utilization vary greatly across the provider community. Even among providers that have adopted technology for EHRs, there is generally a lack of robust functions and features used, or lack of understanding of the functionality available and the potential value of underutilized systems features and information.

In addition, little exchange of health information was occurring outside of a provider's or a stakeholder's network (a typical scenario). Providers face many obstacles to adoption and use, including financial constraints, staff training needs, concerns regarding operational impacts, and uses of existing systems that have traditionally lacked interoperability and require additional enhancements. To meet EHR meaningful use requirements as specified by the CMS Final Rule for the EHR Incentive Program, state health care providers require additional financial resources, technical guidance, and a better understanding of the state's Health IT initiatives. The providers also requested more detailed information regarding how their practice or facility will be impacted by the HITECH Act and state HIT/HIE efforts, independent of whether or not they currently have an EHR system in place.

The adoption barriers encountered by providers are compounded by a number of other variables that define the environment and context for health care in the state. These include the economic climate, the state budget deficit, an ongoing shortage of health care professionals, and confusion about federal requirements and standards.

Key findings resulting from the assessment were grouped into six broad themes:

- Theme 1—Current uses of EHR systems:
    - Many of the providers reached through the assessment show an interest in increasing adoption, despite the numerous barriers that exist.
    - Providers with EHRs report using a broad range of EHR functionalities.
- Theme 2—Direction for EHR adoption and HIE utilization:
    - The EHR adoption levels vary by provider type with the large hospitals and large physician practices reporting higher levels of EHR adoption compared to other providers.
    - There is a lack of exchange of health information occurring in the Nevada health care system, outside of a provider's or stakeholder's network.
    - Large hospitals, large networks of providers, and other providers that have consciously advanced their EHR capacity ahead of federal legislation are the primary providers who have some level of readiness and capacity to participate in an HIE.
- Theme 3—Meaningful use and incentive payments:
    - Many providers are still unsure about whether or not they will apply for the incentive payments.

  - Providers will have difficulty meeting the proposed meaningful use criteria in a timely manner.
  - The average Medicaid patient volume of providers planning to apply for EHR incentives is 28%, which is below the required 30% minimum.

- Theme 4—Barriers to advancing EHR adoption and HIE utilization:
  - The most significant barrier to implementing, adopting and enhancing EHRs is cost.
  - Providers are overwhelmed by the number of options for EHRs and the effort required to implement or enhance systems within the timelines established at the federal level.
  - Providers are hesitant to engage in HIE due to patient privacy and security concerns.
  - Most stakeholders know little about HIE, including technical infrastructure and recognized standards.
  - Many providers are in "wait and see" mode for further investments in EHR and HIE due to uncertainty around the details of costs for participation in HIE and integration with a statewide infrastructure.
  - The state will be competing with other states for a finite nationwide pool of qualified health IT professionals, until a stable and sustainable statewide labor pool can be established.
- Theme 5—Stakeholder awareness and engagement:
  - With the exception of those individuals and stakeholder groups that were involved in the Health IT Blue Ribbon Task Force, awareness, understanding and engagement of state-level efforts with both Health IT and HIE were very low.
  - Providers show some interest in getting involved in HIE-related planning activities.
  - Provider awareness of the value of EHR adoption as a means of streamlining business processes and creating more efficient health care practices may be confounded by a perceived emphasis on rules and regulations.
- Theme 6—HIE governance:
  - Despite the variance of adoption by provider types, there was some consistency in thinking around models, HIE governance, and the role of the state.
  - See **Section 4.3.2—Establish Multi-Stakeholder Governance** for the governance structure to be implemented.

OHIT embarked on a follow-up 2012 Statewide Health IT Assessment in an effort to evaluation the progress of EHR adoption and HIE readiness by Nevada providers. This 2012 assessment was designed to target primary care physicians and exclusively used an online survey for data collection. The survey was developed to focus on key performance indicators relevant to the adoption, use, and readiness of these health care technologies.

The 2012 survey indicated that there was improved provider understanding of EHR capabilities, use, and associated benefits, which oght to help optimize broad adoption. Provider HIE use and perceived value was directly correlated to the rate of those providers in adoption and use of their EHR functionality. The ability to integrate DIRECT Secure Messaging into the normal provider workflow and with EHRs will likely influence enrollment in NV DIRECT. It is expected that NV DIRECT will be a key influential factor for providers as they make decisions on integrating with NV-HIE. Please see Appendix P for the full report.

## 5.2 HIE Activity Measurement

The HIE Cooperative Agreement Program Information Notice 001 (ONC-HIE-PIN-001), issued July 6, 2010, requires the environmental scan to include an HIE gap analysis of four specific measures to determine the HIE taking place to support meaningful use. This gap analysis was used to help determine:

- What the state will need to do to enable and/or support e-Prescribing;
- The receipt of structured lab results; and
- The sharing of patient care summaries across unaffiliated organizations.

The specific purpose of the gap analysis was to:

- Identify information relevant to priority meaningful use areas as required by ONC;
- Identify gaps in the priority meaningful use areas;
- Establish a baseline that allows the state to monitor meaningful use; and
- Document progress made in addressing HIE gaps.

Therefore, the HIE gap analysis had the following primary objectives:

- Determine baseline and target measurements for:
    - Percent of pharmacies accepting electronic prescribing and refill requests;
    - Percent of clinical laboratories sending results electronically;
    - Percent of health plans supporting electronic eligibility and claims transactions; and
    - Percent of health departments receiving immunizations, syndromic surveillance notifiable laboratory results.
- Describe the state's HIE capacity in relation to the identified measurements.
- Identify areas where baseline measurements do not support Stage 1 meaningful use by geographic dispersion (urban vs. rural), types of providers, and challenges faced by a particular HIE partner.
- Determine the priority of each gap for all providers to meet Stage 1 meaningful use in 2012.

**NOTE:** As described in **Section 8— Financial Sustainability and Management**, a similar set of metric information will be required to determine the optimal reimbursement and incentive model for NV-HIE. These metrics and the resulting models will be essential to establishing long-term financial sustainability of the NV-HIE Business.

**Figure 5-1** summarizes the priority gap areas, state HIE capacity, brief descriptions of the gaps, and brief descriptions of areas where baseline measures do not support meaningful use (additional details regarding the measures, priorities for the measures, and suggested solutions are available later in this report).

## Figure 5-1. Summary Assessment Results of Priority Gap Areas

| Baseline HIE Measurement | HIE Capacity | Description | Areas where Baseline Measures Do Not Support Meaningful Use |
|---|---|---|---|
| Percent of pharmacies accepting electronic prescribing and refill requests | 97% | A majority of pharmacies in Nevada are part of chains that have the largest capacity for accepting electronic prescriptions. Almost 1.5 million prescription transactions were routed electronically in 2009. It is estimated that only 13% of eligible prescriptions were routed electronically. This is due in part because of the limited number of providers that engage in e-prescribing. Provider participation with e-prescribing should factor into the analysis and solution for this gap. | • Small, independent and rural pharmacies face the largest challenges in accepting electronic prescribing and refill requests.<br>• There are still margins of errors and duplicate submissions for prescriptions filled electronically.<br>• Providers still face challenges in being able to submit e-prescriptions because they do not have e-prescribing systems or EHRs with e-prescribing capabilities. |
| Percent clinical laboratories sending results electronically | Approximately 92% of independent labs surveyed<br><br>100% of urban hospitals surveyed | Even though 92% of independent labs surveyed report sending laboratory results electronically, independent labs are generally not sending results electronically for the bulk of their lab results, with the exception of the large commercial laboratories (LabCorp, Quest Diagnostics, and Associated Pathologists) and labs associated with large health care groups (ex, Carson Tahoe Pathology). 60% of the lab sites in Nevada are either affiliated with Quest Diagnostics or LabCorp.<br>Most small independent labs still provide hard-copy results.<br>Urban hospitals are transmitting lab results electronically. Lab orders are typically sent electronically as well. Rural hospitals generally provide electronic lab results when they are able to perform tests in-house. | • Small, independent labs face largest gap in sending results electronically.<br>• There is inconsistent data sharing among larger labs with public agencies. |
| Percent health plans supporting electronic eligibility and claims transactions | 100% | All of the major health plans in Nevada support EDI (claims submission) – either directly or through a clearinghouse (Emdeon, Capario, etc.).<br>Health plans report receiving upwards of 60% to 90% of their claims from providers electronically. However, 64% of providers surveyed through the Health ITStatewide Assessment send electronic claims to health plans.<br>Also, all plans support eligibility verification – either online or via Interactive Voice Response (IVR). Most plans also support electronic pre-authorization and referral management. | • Despite that all health plans surveyed report supporting electronic eligibility and claims transactions, not all providers engage in electronic eligibility and claims transactions. |
| Percent health departments receiving immunizations | 100% | All health departments report into WebIZ and can access immunization records for recipients. In addition, other health care providers can provide immunization records for | • The Health Division is conducting pilots with some health care providers to support real-time HL7 interfaces to WebIZ. While |

| Baseline HIE Measurement | HIE Capacity | Description | Areas where Baseline Measures Do Not Support Meaningful Use |
|---|---|---|---|
| | | recipients through the system. | most providers do not have direct interfaces with the system at this time, it is expected in 2014. While the architecture of WebIZ supports direct EHR interfaces, eliminating the need for HIE, WebIZ believes it may become an NV-HIE customer, as it expects to need access to the eMPI and Master Provider Director. |
| Percent health departments receiving syndromic surveillance | 75% | One of the four Health Districts in Nevada report receiving data on syndromic surveillance results on a voluntary basis by hospitals. There are no reporting requirements statewide, nor are there any plans to establish such requirements. Hospitals and Urgent Care facilities submit chief "complaint" data into EpiCenter. The state is in the process of adding more facilities that can submit complaint data. The information is pulled real-time. With the exception of Southern Nevada Health District, the districts can access the system and obtain surveillance data. | • Only 3% of providers surveyed through the Health IT Statewide Assessment report sending results for syndromic surveillance.<br>• Southern Nevada Health District has opted out of accessing EpiCenter. |
| Percent of health departments receiving notifiable laboratory results | 75% | Three of the four Health Districts in Nevada report being capable of receiving electronic lab results. However, lab results received by the state are mostly limited to the larger laboratories.<br>With the exception of Southern Nevada Health District, most the state uses the NEDSS Base System, which provides the ability to enter, manage, and view core demographic and nationally notifiable disease data via a web browser. | • Smaller, independent labs need infrastructure to send results electronically.<br>• Currently, there is not a direct interface between electronic lab reports and communicable disease surveillance system for labs other than LabCorp. |

It is currently anticipated that the NV-HIE will support the electronic meaningful use and clinical quality reporting to Medicaid and Medicare, in accordance with federal requirements and in alignment with Nevada Medicaid's SMHP.

# 6 NV-HIE Stakeholder Coordination and Collaboration

In order to make the NV-HIE as comprehensive in coverage as possible, the state began soliciting, engaging, interviewing, and interacting with all known stakeholders as early as 2009. This exercise is actually an ongoing, progressive initiative to include new stakeholders that may not have previously been available or known and to circle back with identified stakeholders whom either by the state's need for additional input, or the stakeholder's volunteering of information, continue to participate in the information gathering process. Individuals, representative groups, educational organizations, employers, payors, have all provided input to the overall stakeholder solicitation and information gathering process.

Nevada is aware of three possible community/regional HIEs in development, although Nevada is not funding any of these initiatives. Two are choosing to remain confidential at this time. On April 19, 2011, HealthInsight, Nevada's REC, announced plans to establish a community HIE within the State of Nevada. The HealthInsight announcement included naming its selection of Axolotl (part of Ingenix, a subsidiary of the UnitedHealth Group) as its HIE product vendor. Nevada's Office of Health IT is not yet aware of any detailed HealthInsight plans for development and deployment of this proposed effort. However, the State HIT Coordinator has been in contact with HealthInsight and is, and will continue to be, included in regular development discussions as HealthInsight's business plan becomes better understood. As stated above, Nevada's exercise of engaging, coordinating with, and collaborating with existing and burgeoning stakeholders is an ongoing effort. Nevada will continue to work with all interested and potential stakeholders, like HealthInsight, proactively, as they make their presence and intentions known.

The results of the Health IT assessment indicated the need for greater Health IT involvement from health plans.

Current health care insurance coverage of Nevada's population is grouped as follows:

- 21 percent uninsured.
- 23 percent public program (Medicare, Medicaid and CHIP).
- 35 percent private health plans.
- 21percent ERISA/self-funded plans.

Nevada has four health authorities for the public health of the state's 17 counties:

- **Southern Nevada Health District.** Responsible for Clark County, where approximately two-thirds of the state's population resides.
- **Washoe County Health District.** Responsible for the second largest urban county, where approximately one-fifth of the state's population lives.
- **Carson City Health Department.** Responsible for those residents living in the state capital.
- **Nevada State Health Division and State Health Officer.** Share responsibility for the remaining 14 counties.

Many county and local agencies that provide health care services have EHRs or other Health IT-related systems that may need enhancements in order to interface and be interoperable with other HIE systems. Going forward, the NV-HIE Business will coordinate with the following stakeholders in order to be sure the HIE project is inclusive:

- Skilled nursing facilities.
- Durable medical equipment (DME) providers.
- Emergency medical services (EMS) providers.
- Occupational therapists.
- Physical therapists.
- Pharmacies and pharmacists.
- Dentists.
- Chiropractors.
- Diagnostic clinics/labs.

Engaging stakeholders in a proactive and ongoing manner will also improve the adoption necessary to have a comprehensive HIE that advances the quality of patient care and the other care and systemic benefits that the NV-HIE. Through aspects of the environmental scan, interviews, and other ongoing dialogue, major state organizations such as the Nevada State Medical Association, Nevada Hospital Association, the Nevada Rural Hospital Association, several state agencies and universities are already considered early adopters/participants in the initial state HIE initiatives. This is an important aspect to launching an operational HIE, which will include early participation from major patient care and information organizations. **Figure 6-1** offers a more specific view of stakeholders and their status.

**Figure 6.1. Stakeholder Collaboration Strategy and Current Status**

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| Medicaid | Nevada Division of Health Care Financing and Policy (State Medicaid Agency) | SMHP Alignment and HIE Implementation<br>Eventual health analytics services | Ongoing; State Medicaid Deputy Director is NV-HIE Board Member, State Medicaid Director was prior Blue Ribbon Task Force Member |
| | Nevada Division of Welfare and Supportive Services (Medicaid eligibility) | Identity management for Medicaid clients and for SSHIX eligibility | Ongoing with determination to be made during implementation |
| ARRA Coordination | Regional Extension Center (HealthInsight) | EHR Adoption and Achieving Meaningful Use by Eligible Providers; Provider Outreach and Education | Ongoing; CEO was prior Blue Ribbon Task Force Member |
| | Work Force Development<br>(College of Southern Nevada) | Provider Outreach and Education | Ongoing |
| | Nevada Department of Employment, Training and Rehabilitation | Potential Health IT Workforce Training, as ARRA funding sources identified | Ongoing |
| | Nevada Hospital Association (NHA) | Coordination for EHR adoption, HIE participation, and achieving meaningful use; Coordination with NHA Broadband grant for member hospitals' HIE connectivity | Ongoing |
| | Nevada State Library and Archives | Coordination with broadband grant for public computing centers, for patient access to EHRs/PHRs and JIR workforce training | Ongoing |

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| | Beacon Communities | Not applicable | None awarded in NEVADA |
| Other State Organizations | Public Health Authorities (3) | Meeting meaningful use; EHR adoption; Electronic reporting of immunizations, syndromic surveillance and notifiable lab results | Ongoing |
| | Nevada State Health Division | Electronic reporting of immunizations, syndromic surveillance and notifiable lab results | Ongoing; State Health Officer was prior Health IT Task Force Member |
| | Nevada State Health Division – Office of Vital Statistics | Support in defining unique person identifier (e.g., birth certificate number plus state ID) | Ongoing with the Chief Biostatistician |
| | Nevada State Health Division– various Public Health registries (e.g., Immunization, Cancer, HIV/STD, Communicable Diseases, Sentinel Events, and Trauma) | Role and operational changes in coordination with EHR adoption and HIE implementation | TBD, once HIE technical infrastructure is determined |
| | Nevada State Health Division – Public Health Preparedness Program and Office of Emergency Medical Services | Coordination with state public health emergency/disaster alert systems; Coordination with EMS/EMT personnel regarding HIT/HIE capabilities and requirements for emergency medical care | TBD during HIE implementation |
| | Nevada State Health Division – Primary Care Office (PCO) | Role and operational changes in coordination with EHR adoption and HIE implementation | TBD during HIE implementation; State HIT Coordinator is member of PCO Workgroup |
| | Nevada State Board of Health | Supporting HIT/HIE regulations for health care facilities, medical labs, and public health requirements within its jurisdiction | TBD during HIE implementation |
| | Silver State Health Insurance Exchange | HIE support for state HIX operations | Initiated working relationship |
| | Nevada Division of Mental Health and Developmental Services | EHR adoption and meeting Meaningful Use requirements for providers and health facilities | Ongoing |
| | Nevada Division of Aging and Disability Services | Coordination with SHIP program | Ongoing |
| | Nevada Division of Child and Family Services | EHR adoption and HIE | Ongoing |
| | Nevada Department of Education | Sharing of children health records (including immunizations) from clinics in public schools; Coordination of HIPAA and FERPA | TBD during HIE implementation |
| | Nevada Department of Education: Health Sciences Education | Collaboration and coordination regarding high school education/training programs related to HIT/E | Ongoing |
| | Nevada Division of Insurance | Coordination of HIT/HIE as related to health insurance plans; Supporting HIT/HIE regulations within its jurisdiction | Ongoing; Nevada Commissioner of Insurance was Health Blue Ribbon Task Force member |

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| | Nevada Department of Corrections and local/county jails | EHR adoption and meeting Meaningful Use requirements for prison health care providers and health facilities | TBD during HIE implementation |
| Other State Organizations | Nevada State Medical Boards (various) | Supporting HIT/HIE regulations within their jurisdiction | Ongoing with the State Board of Medical Examiners and State Board of Pharmacy; TBD for all others during HIE implementation |
| | Nevada System of Higher Education | University School of Medicine – EHR adoption and meeting Meaningful Use for clinics and incorporating Health IT into medical school curriculum; College of Business – Health economics, workforce needs, and business intelligence; College of Engineering – workforce training; Community Colleges – workforce training | Ongoing; Vice Chancellor, Health Sciences System was Health ITBlue Ribbon Task Force member |
| | Nevada Public Employees Benefits Plan | HIE for electronic claims processing, HSA Management, and possible PHRs for members | Ongoing |
| | Nevada Secretary of State | Incorporation of Advanced Directives and Living Wills into EHRs, with access via HIE; potential elimination of electronic state Living Will Lockbox | TBD during HIE implementation |
| | Governor's Workforce Investment Board – Health and Medical Services Sector Council | Development of HIT/HIE workforce to support EHR and HIE systems | State HIT Coordinator is a council member; Health IT workforce development is priority area |
| | Governor's Office of Economic Development | Development of HIT/HIE businesses and workforce to support EHR and HIE systems | TBD during HIE implementation, in coordination with Health and Medical Services Sector Industry Specialist |
| | Northern Nevada Development Authority | Economic and workforce development support for EHRs, HIEs, and other Health IT initiatives | State HIT Coordinator is member of Technology Infrastructure Advisory Committee and Vice Chair of Health Care Advisory Committee |
| | Nevada Health ITBlue Ribbon Task Force | Advisory of key HIT/HIE stakeholders for HIE Cooperative Agreement | Sunset June 30, 2011 |

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| | Nevada Health Information Exchange (NV-HIE) Board of Directors | Coordination and collaboration for implementing the State HIT Plan | Board members announced May 29, 2012; will be ongoing, once they establish their meeting schedule |
| | Nevada Broadband Task Force | Coordination of HIT/HIE efforts with broadband expansion activities | Ongoing, State HIT Coordinator presents SHIE update as standing agenda item for each meeting |
| | Nevada Rural Hospital Partners | Coordination for EHR adoption, HIE participation, and achieving meaningful use; Possible HIE entity for rural hospitals and providers | Ongoing |
| | Nevada Cancer Institute | Coordination for EHR adoption, HIE participation, and achieving meaningful use | Ongoing; CIO was member of Health ITBlue Ribbon Task Force |
| | Nevada State Medical Association | Coordination for EHR adoption, HIE participation, and achieving meaningful use | Ongoing |
| | Nevada Dental Association | Coordination for EHR adoption, HIE participation, and achieving meaningful use | TBD during HIE implementation |
| | Nevada Health care Association (LTC facilities) | Coordination for EHR adoption and HIE participation | TBD during HIE implementation |
| | Nevada Ambulatory Surgery Centers Association | Coordination for EHR adoption, HIE participation, and achieving meaningful use | TBD during HIE implementation |
| | IPAs | Coordination for EHR adoption, HIE participation, and achieving meaningful use | Ongoing |
| | Great Basin Primary Care Association (state PCA) | Coordination for EHR adoption, HIE participation, and achieving meaningful use | Ongoing; Past Chairman was member of Health IT Blue Ribbon Task Force |
| | Home Health care Association of Nevada | Coordination for EHR adoption and HIE participation | TBD during HIE implementation |
| | Retail Clinics | Coordination for EHR adoption and HIE participation | TBD during HIE implementation |
| | School Health Offices/Clinics | Sharing of children health records (including immunizations) from clinics in public and private schools. | TBD during HIE implementation |
| Commercial Labs | Quest | Delivery of structured lab data, via HIE participation, to meet meaningful use requirements | Ongoing |
| | LabCorp | Delivery of structured lab data, via HIE participation, to meet meaningful use requirements | Ongoing |
| | Associated Pathologists | Delivery of structured lab data, via HIE participation, to meet meaningful use requirements | Ongoing |
| | Independent Labs | Delivery of structured lab data, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| Pharmacies | CVS | eRx services, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |
| | Target | eRx services, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |
| | Walgreens | eRx services, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |
| | Wal-Mart | eRx services, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |
| | Scolari's Food and Drug Company | eRx services, via HIE participation, to meet meaningful use requirements | Ongoing; Vice President of IT was member of Health IT Blue Ribbon Task Force |
| | Independent Pharmacies | eRx services, via HIE participation, to meet meaningful use requirements | TBD during HIE implementation |
| | Surescripts | Enabling eRx services to meet meaningful use requirements | TBD during HIE implementation |
| Payor Organizations | Aetna | Electronic eligibility and claims transactions, via HIE participation | Ongoing |
| | Anthem | Electronic eligibility and claims transactions, via HIE participation | Ongoing |
| | Hometown Health | Electronic eligibility and claims transactions, via HIE participation | Ongoing |
| | Saint Mary's Health Plans | Electronic eligibility and claims transactions, via HIE participation | Ongoing |
| | UnitedHealth of Nevada | Electronic eligibility and claims transactions, via HIE participation | Ongoing; CIO was a member of the Health IT Blue Ribbon Task Force |
| | Private Health Insurance Plans | Electronic eligibility and claims transactions, via HIE participation | Ongoing |
| | ERISA Plans | Electronic eligibility and claims transactions, via HIE participation | Ongoing; a representative was a member of the Health IT Blue Ribbon Task Force |
| Other Federal Organizations | eHealth Exchange (ONC) | Compatibility with statewide HIE | Ongoing |
| | CDC | Public health surveillance, reporting, and emergency preparedness | Ongoing |
| | CMS | Coordination with and support for Medicare EHR Incentive Program | Ongoing |
| | Indian Health Service and the Indian Tribes of Nevada | Coordination for EHR adoption, broadband connectivity, HIE participation, and achieving meaningful use | Ongoing |
| | DoD | Coordination for EHR adoption, HIE participation, and achieving meaningful use; Coordination with local Navy and Air Force bases regarding Electronic Warfare systems to prevent unintended interference with HIE operations | TBD during HIE implementation |
| | Veterans Administration | Coordination for EHR adoption, HIE | Initiated working relationship |

| | Stakeholder | Collaboration/Role Expectation | Current Status |
|---|---|---|---|
| | | participation, and achieving meaningful use | |
| | Internal Revenue Service | Coordination of HIX provisions with HIE requirements; Tax credits/liabilities for HIXs | TBD |
| Residents | Patients | Access to their EHRs; privacy and security of personal and/or identifiable health information; consent for sharing of their health information via HIE | Ongoing |
| | Legislators | HIT/E legislation, as needed | Ongoing |
| | Office of the Attorney General | Coordination of required HIE complaint process (pursuant to SB 43) and data breaches (pursuant to HITECH Act) | Ongoing |

The following subsections articulate additional insights to the strategy for collaborating with major stakeholders and stakeholder groupings.

## 6.1 Collaboration with Nevada Division of Health Care Financing and Policy

HIT/HIE initiatives are being planned and managed within Nevada DHHS, as a shared responsibility of the OHIT and DHCFP. Additionally, stakeholders that were engaged in the Nevada Health IT Blue Ribbon Task Force and its subcommittees contributed to the early stages of planning, mediation, and success of the state's HIE efforts this far.

OHIT is responsible for coordinating statewide HIT/HIE efforts and initiatives. This includes the ongoing administration and management of the ARRA HITECH State HIE Cooperative Agreement, and facilitating the core infrastructure and capacity that will enable intra-state, interstate and nationwide HIE. The state's vision is to enable an integrated, multi-stakeholder HIE that provides comprehensive health information when and where needed, in as near-real-time as possible. The state's HIT/HIE objectives are:

- Fostering an environment that encourages adoption and use of Health IT and HIE by the health care community;
- Supporting health information access and exchange that is available 24 hours a day, seven days a week, in compliance with national policies and standards;
- Improving care coordination and quality through enhanced clinical decision support as a result of more robust and timely information availability through HIE services;
- Reducing medical errors and improving patient safety;
- Reducing costs by eliminating unnecessary or duplicative procedures;
- Enhancing statewide public health and epidemiological surveillance capabilities for improving population health and real-time identification and mitigation of disease outbreaks and emergency health situations;
- Supporting emerging health care needs by creating an environment that fosters innovation;
- Supporting the role of consumers and providers in improving health outcomes and managing costs; and

- Ensuring the maximum privacy and security of Nevadans' personal health information (PHI).

DHCFP administers the Medicaid and CHIP programs under Nevada DHHS, and is collaborating on statewide HIT and HIE planning efforts with OHIT. DHCFP's Health IT Project Staff are responsible for:

- Participating in statewide initiatives and workgroups;
- Coordinating with Medicaid stakeholders;
- Overseeing any contracted work associated with the SMHP planning tasks;
- Planning for and administering the EHR Incentive Program for Medicaid providers; and
- Establishing appropriate communication and outreach strategies with Medicaid providers.

**Appendix F—Letter of Support** is from the State Medicaid Director. HIT/HIE coordination and collaboration between DHCFP and the State HIT Coordinator are ongoing and supported by the DHHS Director. The Health IT assessment completed in August of 2010 was a joint effort between DHCFP and the State HIT Coordinator, to complete the CMS-required landscape assessment and ONC-required environmental scan. Combining these activities into a single effort, using the same vendor, was cost-effective, ensures consistent data results for both Health IT strategic plans, and identifies more opportunities for joint collaboration, particularly in the areas of (1) provider outreach and education regarding EHR adoption; (2) meeting meaningful use requirements; and the (3) Medicaid EHR Incentive Program. In addition, the results identified potential areas of collaboration for OHIT, Nevada's REC, and DHCFP, including business priorities for assisting providers with EHR adoption, some of which could be addressed by leveraging the Health IT training activities being offered by the College of Southern Nevada, as part of the region's HITECH workforce training grant.

The State HIT Coordinator participated in the development of the approved DHCFP Health IT Planning Advanced Planning Document. That same individual served on the selection panel that evaluated the responses to our RFP for the **State Medicaid Health IT Plan and Implementation—Advanced Planning Document** project. DHCFP and the State HIT Coordinator continue coordinating and collaborating as they begin implementing their respective required health IT strategic and implementation plans. This effort is continuous, to ensure alignment between statewide and Medicaid HIT/HIE goals and objectives. The Deputy Director of Nevada Medicaid is a member of the initial Nevada HIE governing board.

In preparation to developing and deploying a statewide HIE infrastructure, challenges identified include:

- Lack of sufficient existing HIE infrastructure, including Regional Health Information Organizations (RHIOs) and community HIEs that can be leveraged or expanded.
- Lack of qualified IT and health IT professionals to meet statewide health IT needs.
- The fragile state economy and budget crisis that reduce available resources necessary for implementing an HIE infrastructure and meeting federal financial match requirements.
- Evolving federal standards, guidance, project requirements.
- Various HITECH and ACA federal rules/regulations in development, which may necessitate additional state legislation.
- Lack of coordination between federal agencies and between HITECH and ACA.
- Accelerated timelines which can stress effective planning and challenge successful implementation.

## 6.2 Collaboration with the Nevada REC

HealthInsight was awarded an ARRA HITECH REC grant, to operate as the REC for both Nevada and Utah. They have enjoyed a long working relationship with both states, as their federally designated Quality Improvement Organization (QIO) for many years, collaborating quality improvement initiatives. The CEO of HealthInsight was a member of the Health IT Blue Ribbon Task Force and served as its Vice Chairman, providing regular updates regarding REC activities. HealthInsight staff served on Task Force subcommittees and as subject matter experts to the Task Force, the State HIT Coordinator and Nevada Medicaid.

A private, nonprofit organization incorporated in Nevada and Utah, HealthInsight as Nevada's REC is assisting providers with the selection process and the requirements to meet meaningful use, along with assistance for implementing and leveraging HIE. As of April 2012, the REC had worked with over 700 eligible providers in Nevada, with 535 of those successfully adopting EHR technology. As of April 2013, 1,940 eligible hospitals and providers have registered for EHR Incentives (Medicare and Medicaid), 1,521 have received incentive payments of over $68.8 million.

The REC continues to work closely with DHCFP and OHIT. The three entities have regularly scheduled meetings to ensure coordination of HIT/HIE efforts, and expect their collaboration to be an ongoing effort. The REC continues to coordinate and collaborate with many other HIT and HIE stakeholders in the state to assess and monitor statewide progress of EHR adoption, and its impact on providers and patients. The feedback shared with DHCFP and OHIT is valuable to their joint efforts.

## 6.3 Collaboration with the eHealth Exchange

Nevada's statewide HIE technical infrastructure will require flexibility to respond to market changes, adaptability to new technology innovations, and connectivity and interoperability with the eHealth Exchange. The technical design of Nevada's HIE infrastructure will need to be consistent with national standards and protocols that bridge proprietary boundaries and to establish the framework for eHealth Exchange connectivity and certification as a HIE. During the early stages of the NV-HIE program, the Direct Messaging capabilities, developed through the public-private Direct Project (www.directproject.org) that is being facilitated by the Office of the National Coordinator (ONC), will be utilized to support the implementation of Stage 1 meaningful use.

Once the Nevada HIE infrastructure has been established, the NV-HIE governance organization will initiate the ONC Exchange Onboarding Process which includes Qualification, Validation, and Activation activities. This effort will be accounted for in the program plan. Currently, based on ONC guidance, the estimated time for completing the ONC Exchange Onboarding Process is 6-8 months once the HIE infrastructure has been implemented.

Following the completion of ONC Exchange Onboarding resulting in the issuance of an ONC certificate and the publication of the Nevada gateway, it is anticipated that the Nevada health community will make use of a number of HIE gateway services. As articulated in Figure 6.1 – Stakeholder Collaboration Strategy and Current Status, it is envisioned that exchange of data will be needed for a vast number of external stakeholders. It is anticipated that the eHealth Exchange based gateway services will facilitate these exchanges. Some key examples include:

- Gateway services with the Indian Health Service (IHS) to support the tribal nations that exist in Nevada (see http://www.ncsl.org/issues-research/tribal/list-of-federal-and-state-recognized-tribes.aspx#nv);
- Gateway services with Veteran Health Administration (VHA) of Veteran Affairs (VA) for connectivity between VA facilities based in Nevada (see http://www2.va.gov/directory/guide/state.asp?STATE=NV),

the systems at VHA, and the private care facilities of Nevada (see http://www.nvha.net/nhamemberhospitals/);

- Gateway services for Mike O'Callaghan Federal Hospital on Nellis Air Force Base as well as with the Department of Defense (DoD) Military Health System;
- Gateway services with Centers for Disease Control and Prevention (CDC) to facilitate interaction with the Nevada care providers as well as with varies programs and registries managed by Public Health within the Nevada State Health Division;
- Gateway services with Social Security Administration (SSA) to facilitate electronic exchange of clinical information needed to adjudicate medical disability claims.

In addition to these federal partners, it is anticipated that the eHealth Exchange Gateway will also be used to facilitate interstate connectivity with other HIEs. This includes neighboring states to Nevada (as part of the Western State Consortium) as well as other states which have HIEs in support of individuals that are visiting Nevada (e.g., Tahoe ski resorts) and when Nevadans travel to other parts of the U.S.

Depending on market interest and associated business cases, the timing and sequencing of the development and test of gateway services with these federal partners and other external stakeholders may be adjusted for financial and pragmatic reasons. The Nevada HIE Governance Organization will be engaged to support this decision making as well as to develop the federal partner gateways, the interstate gateways, and to complete the onboarding process with those respective organizations.

## 6.4 Collaboration with Other ARRA Programs

### 6.4.1 Collaboration for Broadband

In July 2009, then-Governor Jim Gibbons issued an Executive Order establishing the 12-member Nevada Broadband Task Force to ensure broadband accessibility, availability, affordability, and reliability across the state. The mission of the Broadband Task Force is to identify and remove barriers to broadband access and identify opportunities for increased broadband applications and adoption in un-served or underserved areas of Nevada. The Broadband Task Force has provided oversight of the ARRA funding received for broadband mapping and data management, and is charged with ensuring grant compliance.

In the state, broadband connectivity for health care providers is critical to successful HIE implementation, EHR adoption, and meaningful use. Without broadband connectivity for HIE, it will be difficult for certain eligible providers to qualify for EHR incentive payments. Providers in Nevada's rural counties are often underserved by broadband service or have no service available. The Broadband Task Force has been coordinating efforts with the Health IT Task Force, since November 2009, regarding overlapping priorities and goals.

In the state, broadband connectivity for health care providers and hospitals statewide will be critical to successful EHR adoption, meaningful use and HIE. All are necessary for eligible providers, both in urban and rural settings, to receive incentive payments. While ARRA did include some funding for expanding broadband capacity, it was not done to the same extent as HIE, nor is it part of HITECH. Of particular concern are the state's rural counties, where the rural hospitals and health care providers must meet the health care needs of Nevada residents in federally-designated medically underserved areas and where broadband service is underserved or not available. Due to the state's physical terrain and considerable federal land ownership, it may need to investigate leveraging existing telemedicine assets and/or employ other means of connectivity such as satellite or microwave technologies. While Governor Brian Sandoval requested a $3 million appropriation to expand broadband access in rural Nevada, as part of the state's 2012 to 2013 biennial budget, the request could not be funded due to other state priorities. In June 2011, OHIT conducted an HIE Broadband Analysis to better

understand the broadband capacity available to Nevada's health care providers statewide (see Appendix H). Key findings included:

- Current speeds appear sufficient to support current levels of electronic HIE;
- Most Nevada health care entities have more than one option for broadband access;
- Some rural areas and urban pockets are underserved, which may impact the ability of some Eligible Providers (EPs) to meet meaningful use (MU) requirements;
- Wireless may potentially fill the gaps for the 3 percent of health care entities without access to wireline broadband services; and
- Importance of bandwidth for expected to eclipse speed, especially once HIEs are fully operational and ubiquitous, and thinking ahead 2-3 years is important

The information was presented to the Nevada Broadband Task Force, who offered assistance with addressing gap areas as the implementation of the State HIT Plan proceeds.

Recent ARRA broadband awards will help to support HIE efforts. In particular, the $19.6 million award to the Nevada Hospital Association will be used to build and operate a statewide telemedicine network to be made available to 37 medical hospitals throughout the state, with possible additional capacity for use by other health care providers. Another key ARRA broadband award was to the Nevada State Library and Archives for just over $800,000 to establish public computing centers in each of Nevada's 17 counties. The state has seen a significant increase of public library computer usage over the past two years and additional access will allow state residents to have access to their Personal Health Records (PHRs).

### 6.4.2 Collaboration for Health IT Workforce Development

While HITECH authorized the creation of education programs and curriculum to train health ITprofessionals to effectively implement and use Electronic Health Records (EHRs), the funds allocated are not expected to meet the demand for the necessary training and development to build a sufficient labor pool of qualified IT and health IT professionals throughout the U.S. It is estimated that only 17 percent of U.S. doctors and 10 percent of U.S. hospitals have even basic EHRs. Barriers to adoption include:

- The substantial cost.
- The perceived lack of financial return on investment.
- The technical and logistical challenges involved in installing, maintaining, and updating an EHR system.
- Consumers' and physicians' concerns about the privacy and security of electronic health information.

While HITECH addresses these obstacles, the expected result is a dramatic increase in demand for general IT and health IT professionals[2].

The College of Southern Nevada (CSN) is Nevada's participant in the Health IT Workforce Development Program's Community College Consortia to Educate health IT Professionals in Health Care Program. Nevada is the same region with Arizona, California, and Hawai'i, and California was the lead state for the regional grant. CSN, already a leader in this area, provided an overview of its proposed program to the Health IT Task Force, and participated in the Nevada Health IT assessment. It is coordinating efforts with HealthInsight.

[2] Blumenthal D. Stimulating the adoption of health information technology. N Engl J Med 2009; 360:1477-1479

Program updates are shared with the State HIT Coordinator. Estimates based on data from the Bureau of Labor Statistics, Department of Education, and independent studies indicate a shortfall over the next five years of approximately 50,000 qualified health IT workers required to meet the needs of hospitals and physicians as they move to adopt certified EHRs. The health IT Workforce Development Program is expected to reduce the estimated shortfall by 85 percent. However, building a labor pool of sufficient size and with the necessary skill set will take time, making it difficult to achieve HITECH deadlines for EHR meaningful use. Also necessary is an interest in the part of high school students to pursue the required post-secondary education to qualify for these positions. To this end, the State HIT Coordinator continues to meet with the Nevada Department of Education's Health Sciences Education Programs Professional Coordinator to ensure collaboration regarding programs related to HIT/HIE. Another factor is that the curriculum for such education programs must be developed, which also takes time to accomplish. Until such a stable and sustainable labor pool can be established, the State may find itself competing with other states for a finite group of IT and health IT professionals. It may also be a lost opportunity for expanding the economic base of the state's economy and new jobs creation.

The state will need to explore economic development incentives and funding mechanisms for higher education programs to meet IT and health IT workforce development for successful EHR adoption and a sustainable HIE infrastructure. The State HIT Coordinator has had an initial meeting with representatives of the state Economic Development Commission to review the issues and possible solutions. This will be pursued further, once decisions are made regarding governance structure, technical infrastructure and financial model.

Economic development and jobs creation are high priorities for Governor Brian Sandoval. Senate Bill 449, passed by the Nevada Legislature in 2011, reorganized the state's economic and workforce development efforts, including the Governor's Workforce Investment Board. The State HIT Coordinator was appointed to the Board's Health and Medical Services Sector Council and serves as an active member. Based on a recent study by Kaiser Permanente, published by *Health Affairs* in May 2012, which supported the positive environmental impact of EHRs, the Council provided health IT training recommendations to the Department of Employment, Education and Training for the use of available ARRA funds targeted for improving the state's environmental footprint.

Nevada estimates that it will need an IT/HIT workforce of at least 3,500 technicians, specialists and professionals by 2017. The current available workforce is one-fourth to one-third of the 2017 projections. Research done by the Western Interstate Commission for Higher Education (WICHE) indicates that the implementation of health IT, particularly EHRs, will decrease the need for medical coders, billers and transcriptionists. New education and training programs will need to be developed to meet the future needs of the IT-enabled health care industry, and offer new career opportunities for these displaced workers.

### 6.4.3 Collaboration for Beacon Grants

There are no Beacon Community grantees in the Nevada.

## 6.5 Collaboration with ACA Health Insurance Reform—HIXs

While this plan does not yet address the specifics, it is acknowledged that the plan will likely be modified to incorporate the requirements of the ACA. The Office of Health Information Technology and the Silver State HIX continue to work together to determine the extent to which the HIE strategy and implementation can be leveraged for the ongoing operation of the Silver State HIX. One such area is the HIE-required provider and patient identity services (e.g., master provider index, unique patient identified, identity authentication and resolution, gateway to the eHealth Exchange, and secure messaging standards.).

## 6.6 Collaboration with Other State Organizations

Already established at the state-level are various systems for the purposes of public health surveillance and reporting, including the electronic reporting of immunizations and some notifiable diseases, as well as for partial syndromic surveillance. Some of the systems are simple databases, some are web-based, and some have been built and maintained by vendors. In addition, in many cases, the state reports directly to the Centers for Disease Control and Prevention and other federal oversight agencies by leveraging systems provided by those federal agencies. While the state's public health authorities, including the State Health Division, desire and fully support the electronic reporting of public health information, a great deal of coordination will be needed to ensure interoperability between the systems and the HIE.

However, they have expressed four concerns which will need to be addressed:

- The perceived lack of coordination between ONC and CDC regarding HITECH and CDC, resulting in possible reporting conflicts;
- The State's economic situation and the lack of adequate funding to develop and sustain the necessary health IT infrastructure and capacity, both by the health authorities and the state;
- The lack of connectivity and the lack of affordable connectivity; and
- The lack of qualified IT and health IT professionals to service and maintain the infrastructure and systems.

The health authorities are pursuing applicable federal funding to expand the state's capabilities in coordination with the State HIT Coordinator. They believe that public health epidemiological surveillance and reporting can help minimize and mitigate disease outbreaks. As this plan is further developed and refined, enabling full electronic public health reporting will be specifically detailed.

## 6.7 Collaboration with Other Federal Organizations

The first opportunity to engage with the Indian Tribes of Nevada was through their participation in the Health IT assessment. The State HIT Coordinator has since met with the Chief Information Officer and the Nevada Health IT Coordinator for the Indian Health Service/Phoenix Region (IHS/PHX), which includes Nevada. IHS/PHX was briefed on Nevada's efforts, and there was discussion regarding collaboration on statewide HIE and broadband activities, meeting meaningful use requirements, addressing common personal health information privacy and security concerns, coordinating with Nevada Medicaid and the REC, and accessing the health IT workforce training offered through the College of Southern Nevada.

Prior to the Health IT assessment, it had been difficult to engage the Veterans Administration system in the state, chiefly due to time and resource constraints. The same was true for the military/Department of Defense facilities in Nevada. Their health information sharing is done primarily within their own organizations or with other authorized systems (i.e., between Veterans Administration and the Department of Defense). Currently, health information is exchanged with civilian health care providers primarily via paper-based records or through separate electronic media and not through a network or interface. Both have indicated an interest in statewide HIE participation and a willingness to discuss in further detail.

# 7 Governance Approach

The state believes the establishment of a sustainable, nonprofit business to govern and operate the HIE services will best serve its residents and health care providers. This public-private partnership, with independent funding mechanisms, will be expected to fulfill HITECH Act requirements and State HIE Cooperative Agreement terms and conditions for secure HIE, while delivering value to the Nevada residents and businesses. The formation of the NV-HIE Business will implement the varied aspects described in portions of **Section 7—Governance**, **Section 8—Financial Sustainability and Management**, and portions of **Section 9—Business and Technical Operations Approach**. Composition of the NV-HIE Business Board of Directors complies with mandates contained in the HITECH Act and State HIE Cooperative Agreement. The organization is accountable to DHHS Director, as the State Health IT Authority. During the 2011 session of the Nevada Legislature, SB 43 was passed aligning state and federal laws for enabling HIE, and insulating the NV-HIE Business from impacts associated with administration changes.

The NV-HIE Business Board of Directors will operate in a transparent manner. Minimally, it is expected to meet under Nevada Open Meeting Law at least four times during the state fiscal year. The Board will provide a neutral governance forum that oversees and governs the exchange of health-related information among public and private entities as well as patients or their representatives. Key elements of the Board responsibilities include:

- Accountable to the members and the public-at-large;
- Establishment of a convening and coordination structure, including personnel and processes, for maintaining transparency and generating multi-stakeholder public-private collaboration;
- Monitoring compliance with nationally-recognized HIE standards, protocols, and processes;
- Ensuring compliance with state and federal laws, including privacy protection;
- Oversight of HIE operations;
- Facilitation of consumer/patient input and public communications/transparency; and
- Advice and counsel to the DHHS Director, as the State HIT Authority.

The composition of the initial Board consists of:

- The State Medicaid Agency's Deputy Director;
- DHHS Director/representative as the State HIT Authority (ex officio);
- An MD/MS from Silver Sage Center for Family Medicine and Clinical Assistant Professor at the University of Nevada School of Medicine;
- Nevada Rural Hospital Partners President;
- Clinical Pharmacist, PharmD, RPh, Sunrise Hospital and Medical Center
- AMERIGROUP Community Care of Nevada's Chief Executive Officer, MHA;
- Public Health Informatics Scientist, PhD, Southern Nevada Health District;
- State Program Manager, MEd, Connect Nevada; and
- State HIT Coordinator (ex officio).

As the State HIT Authority, the DHHS Director may establish an HIE Advisory Forum (select stakeholder and academic representatives) to serve as an advisory to the State HIT Authority and the NV-HIE Business, regarding HIE issues, business intelligence, and technological innovations.

Funding from the State HIE Cooperative Agreement will be used by the HIE governing entity to establish the statewide HIE system. The State HIT Authority will provide that funding as part of a contractual relationship which ensures alignment with ONC grants management and reporting requirements, state contracting and reporting requirements, and the intent and purpose of the HITECH Act. For fiscal tracking and performance monitoring, the State HIT Authority is considering the utilization of project and program management (PPM) software, such as CA Clarity PPM™, for managing the State HIE Cooperative Agreement and implementation of the State HIT Plan, including the HIE governing entity (please refer to **Section 9 – Business and Technical Operations Approach).**

The HIE governing entity, with the approval of the State HIT Authority, may either hire staff or contract with an entity to administer the statewide HIE. It will also be permitted to contract with vendors and state-certified community and/or regional HIEs to meet state needs, in compliance with applicable state laws and regulations and in accordance with the terms and conditions of the governing entity contract with the State HIT Authority.

Nevada's DHHS, the recipient of the state's HIE Cooperative Agreement, has significant experience managing federal programs and funds, as historically over half of the department's biennial budget is federally funded. For state fiscal years 2012 and 2013, the DHHS estimated budget is over $6 billion, with over $3 billion projected to come from federal funding sources. As a state agency and frequent grant recipient, DHHS is mandated to follow all applicable federal and state laws for purchasing and contracting activities. Relevant Nevada state laws and regulations are contained in the Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC): NRS. 281 and 281A (Ethics in Government), NRS Chapter 333 and NAC Chapter 333 (State Purchasing Act), and NRS Title 8 (Uniform Commercial Code). The Web site maintained by the Nevada Division of Purchasing includes contract and purchasing information for vendors and state agencies (http://purchasing.state.nv.us).

DHHS has policies and procedures in place for managing, tracking and auditing department-administered, federally-funded grants, sub-grants, contracts and sub-contracts in accordance with federal and state laws, as well as pursuant to the related state policies and procedures established by the State Department of Administration and Budget, the State Division of Purchasing, the State Controller, the Secretary of State, and the State Treasurer and included in the Nevada State Administrative Manual (http://nevadabudget.org/wiki/index.php?title=Nevada_State_Administrative_Manual).

Per DHHS policy, all HIE Cooperative Agreement funding issued as grants or sub-grants are required to be approved by the Office of the State Attorney General and the DHHS Director. Pursuant to state policy, all contracts and sub-contracts are approved by the State Purchasing Office, the Office of the State Attorney General, and the State Budget Office. All contracts and sub-contracts of $10,000 or more must also be approved by the Nevada State Board of Examiners (comprised of the Governor, Secretary of State, and State Attorney General). All grants, sub-grants, contracts and sub-contracts are subject to audit at any time by staff from the Legislative Counsel Bureau, at the request of the Nevada Legislature, or by the Department of Administration and Budget. ARRA programs and funds are also subject to audits by the State Controller. Finally, Nevada DHHS' spending authority is limited to the biennial budget approved by the Nevada Legislature. Spending authority for additional federal funding that DHHS receives must be authorized by the Legislature's Interim Finance Committee.

# 8 Sustainability Plan and Management

The sustainability plan of the NV-HIE will be defined in parallel and in iteration with the development of the technical and business requirements and technical architecture. This iterative approach will enable the NV-HIE to develop an HIE service model that delivers value and creates demand for health data exchange and associated HIE services. Included in the approach is the practical matter of financial sustainability which includes the ongoing operation of the NV-HIE without state general fund allocations. The defined approach is directly aligned with the ONC-PIN-002 and the Sustainability Plan guidance it provides.

The state's initiative to deploy the Nevada DIRECT Secure Messaging Service in May of 2012 will contribute to NV-HIE's information sustainability approach by supporting eligible physicians to achieve Stage 1 meaningful use and on boarding the first physicians to the future statewide HIE system. See the Nevada DIRECT Messaging implementation plan provided as an attachment to this document. As the definition and development of the NV-HIE continues, the budget will be built on the following methodology (see below).

## 8.1 Budgeted Match Calculation Methodology

The budget will be built on a quarterly basis and the match costs are calculated in the budget accordingly. The budget for the matching costs will be calculated in accordance with the level of match required for each federal fiscal period and will be calculated at the appropriate ratio of all project costs across all costs categories. The actual match will be calculated in accordance with the project year start and end date, the applicable ratio in effect at that time, and the actual cost incurred during the period. The applicable match ratio for non federal funds will be calculated by taking the total project costs times the appropriate match ratio for the applicable period.

**Year 1**

Project start to 10/1/10: No match requirement.

For the period from 10/1/10 through the end of the project year 1: the ratio of $1 match for every $10 federal or 9.09 percent of total project costs.

**Year 2**

Start of project year 2 through 10/1/11: the ratio of $1 match for every $10 federal or 9.09 percent of total project costs.

For the period from 10/1/11 through 2/7/12: the ratio of $1 match for every $7 federa1 or 12.5 percent of the project costs.

**Year 3**

From the start of project year 3 through 10/1/12: the ratio of $1 match for every $7 federa1 or 12.5 percent of the total project costs.

For the period from 10/1/12 through 2/7/13 the ratio of $1 match for every $3 federa1 or 25 percent of the project costs.

**Year 4**

For project year 4: the ratio of $1 match for every $3 federal or 25 percent of the project costs.

## 8.2 Public and Private Financing Strategies

On February 8, 2010, DHHS received a four-year ARRA HITECH State HIE Cooperative Agreement award of $6,133,426 million from the ONC to develop this plan and facilitate the statewide HIE infrastructure necessary for intra-state, inter-state, and nationwide HIE. As per the HITECH Act, 10 percent of the funding award, or $613,343.00, was allocated for the State HIT plan development, with the remainder dedicated to meeting the terms and conditions of the Cooperative Agreement. Nevada's funding award includes salaries and fringe benefits for the State HIT Coordinator, Management Analyst II, Accounting Assistant III and Administrative Assistant III, and funds the daily operations and grants management costs of OHIT. In August 2009, DHHS received $234,574.00 from the state contingency fund to establish OHIT, hire the State HIT Coordinator, and develop the Cooperative Agreement application. The unused contingency fund, approximately $165,000.00, was approved by the Nevada Legislature to be carried forward and used toward meeting the required Cooperative Agreement match of an estimated $1,266,956. Once the plan is approved by ONC, the remaining Cooperative Agreement funding will be released and OHIT can move forward with HIE implementation. The total planning and implementation budget, which includes both federal and match dollars, is $7,400,382.

As per NRS 439.587, the State DHHS Director, as the designated State Health IT Authority, continues to be involved in NV-HIE's future and the adoption of health information technology by promoting the benefits of health information exchange and the usage of the statewide HIE system among providers, payors and patients. Furthermore, the DHHS Director and the State HIT Coordinator are nonvoting ex officio members of the NV-HIE Board of Directors. In their respective positions, they are able to share their knowledge on Nevada's current health care ecosystem and information technology landscape, provide state policy guidance, and identify opportunities to support NV-HIE efforts for sustainability.

## 8.3 Business Sustainability Plan

DHHS, in collaboration with the Nevada Health IT Blue Ribbon Task Force, reviewed and considered the various HIE models already being utilized, including Not-for-Profit, Public Trust, Provider-Payor Collaborative, Public Utility, and For-Profit. After careful deliberation, it was determined that a Not-for-Profit model would be best for Nevada. This organization is referred to as the NV-HIE Business throughout this document.

To better understand the dynamics of the health IT market in Nevada and what an appropriate approach would be for the NV-HIE to sustain its business after the Cooperative Agreement ends, OHIT has completed an initial NV-HIE Business Model covering the years 2013-2016.. The resulting model describes the rationale regarding how the NV-HIE creates, delivers and captures value, and the related cost structure to support the service offerings. The model will also be an input to the formal processes of creating the NV-HIE operating budget and the formal business plan for 2013-2016.

The NV-HIE Business Model has been developed with the realization that funding of the business through the Cooperative Agreement is finite. Therefore, other revenue sources have been explored to offset NV-HIE costs. DHHS has identified four mainstream revenue sources which would lessen NV-HIE reliance on a single funding source.

**Figure 8.1: NV-HIE Funding Mechanisms 2013 - 2016**

| Revenue Stream | Description | Source |
|---|---|---|
| **State HIE Cooperative Agreement** | Federal funding received by DHHS to establish a statewide HIE infrastructure for the intrastate, interstate and nationwide electronic exchange of patient health information. | • From Federal HHS/ONC<br>• Grant Managed by DHHS/OHIT<br>• NV-HIE will receive funding as a grant Sub-recipient award |
| **HIE Participants** | Organizations that have applied to utilize HIE service offerings. These are essentially NV-HIE customers and will become the essential stream of revenue in the long-term. | • Revenue received from Qualified Participants (Private HIEs)<br>• Revenue received from Qualified Participants (non-HIE organizations including Hospitals, Providers, IPAs, State Agencies, Payors, etc) |
| **Sponsors** | Organizations that operate in the State of Nevada and who see direct or indirect benefits coming from the successful operation of HIE services in the State. While the specific motivations may vary, sponsorship will be provided to fund creation of new HIE services, or to support early operational costs of the NV-HIE. | • Non-health care related industries<br>• Payors<br>• Employers<br>• Pharmaceutical Companies |
| **Other Grants** | As a nonprofit, it is expected that NV-HIE will be able to apply for public and private grants. It is expected that the NV-HIE will develop a grants strategy which is directly aligned with the strategic direction of the HIE services portfolio strategy. | • Exploring opportunities |

Pursuant to the terms and conditions of the Cooperative Agreement, DHHS will work with the NV-HIE to determine the final HIE model and architecture. Nevada will finalize its HIE business plan after deriving information from multiple sources (see **Section 8.6—NV-HIE Services Sustainability**) on the cost and value associated with the HIE, on the most likely sustainability model, and after completing provider readiness assessments.

### 8.3.1 Core Services Revenue Strategy

NV-HIE revenue strategies will need to be built around arrangements used by local HIEs across the State, with consideration of who will provide value and reliable services, and how the HIE will be involved. Five primary revenue strategies to be explored are as follows:

- **Subscription Fees.** Data providers or data users pay fees to the NV-HIE on a subscription basis. Subscriptions can be in the form of annual membership, monthly subscription or specific set fees for value-add services consumed or to be consumed (i.e., pay ahead, which could also include related discounts if any services paid ahead).

- **Transaction Fees.** Data providers or data users pay fees to the NV-HIE based on transactional usage and volume. This may include a tiered scale with volume discounts – lower fee per message delivered for higher volumes.
- **Service/Cost Sharing Fee.** Fees are charged or paid based on meeting certain milestones or cost savings for case management or coordination of care.
- **Pay for Performance.** HIE-enabled pay for performance models can be deployed in two ways: (1) through fees paid by insurers on per member basis, or (2) by insurers paying financial incentives to physicians and health systems for achieving certain health care-related quality measures.
- **Hybrid Models.** Variations combining two or more of the above strategies.

Based on experiences and lesson learned of mature and successful HIEs, a subscription fees model will likely be the best choice in the early stage of NV-HIE. Such a model will provide HIE participating organizations clear insight on the fees to be paid. In these times of economic uncertainty, most participants will prefer costs control over potential savings by choosing a more robust fee model. In addition, a subscription fees model will provide NV-HIE with a solid view of future revenues. As soon as NV-HIE will have a better view of data transactions and the critical mass of providers and patients are connected more mature fee models should be explored.

#### 8.3.1.1 Pricing

As part of the development of the NV-HIE Business Model, DHHS has been exploring different pricing strategies for NV-HIE Core Services. Based on the current assumptions of value propositions per customer segments, the pricing options in Figure 8.2 have been identified. The pricing strategy will ultimately be decided by the NV-HIE Executive Director and approved by the NV-HIE Board of Directors. During that process, DHHS and NV-HIE will work with HIE stakeholders to define the pricing methodology that ultimately meets the needs of the stakeholders and enables an overall sustainability model.

**Figure 8.2: NV-HIE Pricing Options by Service 2013-2014**

| Stakeholders | Pricing Metrics for Core Services (assuming subscription fee model) |
|---|---|
| Qualified Participant: Certified Private HIE | • Based on admissions, ED admissions, ED visits, and clinic visits of the HIE Participants i.e., those hospitals and care organizations connected to the Private HIE<br>• Participant Onboarding fee (e.g., technical integration and administrative costs) DHHS expects to delegate part of the state-required HIE certification process to the NV-HIE, who would receive the expected certification application and renewal fees |
| Qualified Participants: Care Organizations | • Based on admissions, ED admissions, ED visits and clinic visits<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.)<br>• Governance Compliance Verification fee |
| Qualified Participants: Ancillary Health (e.g., labs) | • Transaction fees<br>• Number of results (e.g. lab, radiology) per year<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.)<br>• Governance Compliance Verification fee |

| | |
|---|---|
| State Agencies (non-Medicaid) | • Based on caseload<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.)<br>• Governance Compliance Verification fee |
| Medicaid | • Per Member Per Year<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.)<br>• Governance Compliance Verification fee |
| Commercial Payors | • Per Member Per Year<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.)<br>• Governance Compliance Verification fee, if to be used for case/care management |
| Federal Stakeholders (Examples) | **Social Security**<br>Average annual Nevada claims requiring medical history for adjudication<br>**VA**<br>Number of veterans in Nevada receiving care from non-VA facilities<br>**DoD**<br>Number of military personnel and dependents in Nevada who are covered by TRICARE and receiving care from non-DoD facilities (purchased care)<br>**Indian Health Service / Tribes of Nevada**<br>Number of tribe members obtaining care outside Tribal facilities<br>• Participant Onboarding fee (e.g., technical integration, verification of privacy and security compliance, administrative costs, etc.) |
| NV DIRECT Secure Messaging Users | • It is anticipated that for NV-HIE core service users, the NV DIRECT costs will be included in the above pricing strategies.<br>• For those wishing to subscribe for only NV DIRECT Secure Messaging, then the pricing will be per NV DIRECT Address. This is not the preferred approach of contracting with clients so a strategy may be established to shift potential customers to the Core HIE services as well as NV DIRECT. |

## 8.4 Financial Reporting

The NV-HIE Business will need to implement the appropriate systems and processes to track and report on costs in a segregated manner. The systems and reporting will meet all required reporting to DHHS, ONC, and other federal agencies in an accurate and timely manner. Financial statements will be audited annually by independent auditors, and may be audited by Nevada's Department of Administration and/or Legislative Counsel Bureau.

## 8.5 Audits and Controls

The biennial DHHS budget is well over $1 billion, about one-third of which is state general fund appropriations. The remaining funding is a combination of federal and other grant funds, as well as approved cash gifts and donations. The State HIE Cooperative Agreement is subject to review by the Nevada Legislature Interim Finance Committee's Subcommittee for Federal Stimulus Oversight.

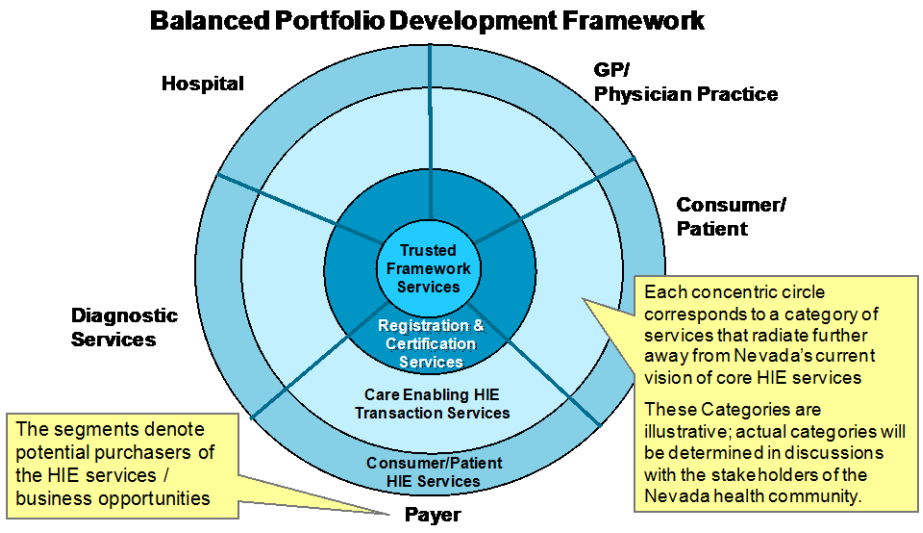
Audited financial statements of Nevada's state agencies are prepared in accordance with generally accepted accounting principles (GAAP) as applied to government entities. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for the accounting and financial reporting principles. Nevada state agencies are subject to regular audits by the Division of Internal Audits, pursuant to applicable provisions of the Nevada Revised Statutes, and the results are reviewed by the Executive Branch Audit Committee. In addition, state agencies may be audited by the Fiscal Division of the Legislative Counsel Bureau, with results reviewed by the Nevada Legislature. Nevada already complies with all Single Audit requirements under OMB Circular A-133, and shall continue to do so.

## 8.6 NV-HIE Services Sustainability

The creation and ongoing operation/evolution of any business will have numerous costs elements that must be offset by incoming revenues. Such common sense logic holds true for the NV-HIE and the business which will be responsible for its own existence, once the ONC funding and state matching funds are no longer available. This section provides the approach that the state will be implementing to help ensure long-term sustainability of the NV-HIE without utilizing state funds through the health information exchange demand management. For NV-HIE, demand management is the creation of HIE service demand through direct interaction with the Nevada health community as well as the delivery of services and solutions that satisfy that demand. The demand management approach by its nature, will balance the value buyers will receive (i.e., the costs they will pay to NV-HIE) with the costs NV-HIE will bear in the delivery of those services (e.g., implementation cost and ongoing operational costs). The approach for payment of services was discussed in Section 8.3. The remainder of this section addresses the guidance provided by ONC-PIN-003, Section 2—Sustainability.

### 8.6.1 NV-HIE Service Portfolio

Financial sustainability will require a clear articulation of the HIE-based services, the value of those services, who the service participants (or actors) will be and when they will connect, and associated revenue streams. The approach to be taken will be determined over time, but there are some common frameworks to be applied. **Figure 8-3** depicts one such model. It is anticipated that the NV-HIE Business will develop a portfolio of services that will be delivered to the different stakeholders (or buyers) within the care community. The services will evolve over time in different service categories starting with common or core services.




To initiate the development of the HIE Service Portfolio, we have prepared two lists of HIE Service opportunities to be considered for delivery by the NV-HIE Business. For each service identified in **Figure 8-4** and **Figure 8-5**, the actors involved are identified as well as the value proposition for the service (i.e., highlights of how does the service add value to

the players involved). It is anticipated that this table will evolve over time as services are qualified out and new services are identified and agreed.

The figures will be the foundation for working with the NV-HIE stakeholder. Through a series of workshops including the parties as well as health economics resources, it is anticipated that the services will be agreed along with the specifics associated revenue streams. The NV-HIE Business will be responsible for codifying these agreements in contracts and then the ongoing management of those contracts.

In the **Figure 8-4**, the column headings have the following meaning:

- **Transaction Based HIE Service.** The rows identify unique types of HIE transactions designed to share patient data with the Requester from the Sender. Each transaction type (row) reflects both the request message as well as the response message.
- **Sender.** Identifies the organization(s) and/or individuals that will respond to requesting message that flow across the HIE. The requested information will be provided via a HIE message to the Requester.
- **Requester.** Identifies the organization(s) and/or individuals that will initiate a HIE transaction by sending a requesting message via the HIE. The reply message from the Sender will contain the content requested.
- **Potential Service Payors.** Identifies the organization(s) that are candidates to pay for the transaction directly or indirectly. Payment will be provided to the NV-HIE Business which may or may not be shared with another player depending on the economics and agreements.
- **Value Proposition.** Partial list of the value the transaction will provide to one or more of the players in the transaction. The intent is to outline why the transaction should be paid for.

**NOTE 1:** The final figure will need to include volumes of transactions and potential transaction costs to understand the value of the transaction to the HIE Business.

**NOTE 2:** It is possible to utilize this analysis to define and justify subscription based agreements in which the transactions are delivered based on a monthly fee to the NV-HIE Business (or via a hybrid model of subscription plus costs over particular volumes).

**Figure 8-4: Transaction Based HIE Services**

| Transaction Based HIE Service | Sender | Requester | Potential Service Payors | Value Proposition |
|---|---|---|---|---|
| Claims | Provider, Third Party | Payor (receiver rather than requester) | Sender | Utilizes standard ANSI X12 4010/5010 transaction<br>Leverages existing communications and registration services for EDI |
| Eligibility | Provider, Third Party | Payor (receiver rather than requester) | Sender | Utilizes standard ANSI X12 4010/5010 transaction<br>Leverages existing communications and registration services for EDI |
| Referral | GP, ER, Hospital, Retail clinics, DoD, VA, I | Specialist, GP, Hospital, DoD, VIIHS) | Sender | Optimize continuity of care (quality)<br>Better patient service/ experience (quality, market)<br>Reduction in administrative time (cost)<br>Utilizes standard ANSI X12 4010/5010 transaction<br>Leverages existing communications and registration services for EDI |

| Transaction Based HIE Service | Sender | Requester | Potential Service Payors | Value Proposition |
|---|---|---|---|---|
| * e-Prescribing | GP, ER, Hospital, Retail clinics, DoDIA, IHS | eRx (Surescripts)<br>Pharmacies | Primary Care<br>Insurance<br>Medicaid<br>Retail Clinic<br>Acute Care Hospital, DoD, VA | Better patient service/experience (quality, market)<br>Reduction in transcription errors (quality, cost)<br>Administrative phoning in Rx (cost)<br>Support meaningful use (quality) |
| Medication History | eRx (e.g., Surescripts)<br>Pharmacies | GP, ER, Hospital, Retail clinics, VA, IHS | Primary Care: Insurance<br>Retail: Clinic<br>Acute Care: Hospital, DoD, VA | Avoid medication adverse reactions and unnecessary care (quality, cost)<br>Administrative savings on patient histories (cost) |
| * Lab Order/Results | Lab company | Ordering provider | Receiving Provider (% share)<br>Lab company (% share) | |
| Historic Lab Results | Lab company (Quest, Associated Pathologists, LapCorp, small labs) | GP, ER, Hospital, Retail, ClinicaI, DoD, VA, IHS | Receiving Provider (% share)<br>Insurance/Medicaid (% share) | Better patient service/experience (quality, market)<br>Optimize ability to diagnose (quality)<br>Reduction in duplicative lab orders (cost) |
| Specialist Consult Report | Specialist (GP, HospItals, DoD, VA, IHS) | GP, ER, Hospital, Retail Clinics, DoD, VA, IHS | Sender<br>Commercial Payor<br>Medicaid | Optimize continuity of care (quality)<br>Better patient service/ experience (quality, market)<br>Reduction in administrative time (cost) |
| * Clinical Summary & Demographics (Prior Primary Care Visits/ Discharge Summaries) | GP, ER, Hospital, RetaiI clinics, DoD, VA, IHS | GP, ER, Hospital,Retail clinics, DoD, VA, IHS | Receiving Provider (% share)<br>Insurance/Medicaid (% share) | Better patient service/experience (quality, market)<br>Optimize ability to diagnose (quality)<br>Administrative savings on patient histories (cost)<br>Improved ability to detect medication abuse (cost) |
| Care Transfer/Care Plan | GP, ER, Hospital, DoD, VA, IHS | Nursing/Home Care/Physical Therapist | Receiving Provider (% share)<br>Insurance (% share) | Better patient service/experience (quality, market)<br>Optimize continuity of care (quality)<br>Effective care in less expensive care setting (cost)<br>Reduction in administrative time (cost) |
| Patient Immunization Update<br><br>(NEVADA WebIZ exists) | GP, ER, Hospital, retail clinics, DoD, VA, IHS | State Public Health (Vaccine Registry) | State of Nevada | Proper vaccination of individuals (quality/cost)<br>Support meaningful use (quality)<br>Reduction in administrative time (cost) |
| Patient Immunization History | State Vaccine Registry | GP, ER, HospiI, Retail clinics, DoD, VA, IHS | Hospital (% share)<br>Primary Care (% share)<br>Insurance/Medicaid (% share) | Proper vaccination of individuals (quality/cost)<br>Support meaningful use (quality)<br>Reduction in administrative time (cost) |

| Transaction Based HIE Service | Sender | Requester | Potential Service Payors | Value Proposition |
|---|---|---|---|---|
| Public Health Reportable Syndromic Surveillance Event | GP, ER, Hospital, Retail clinics, DoD, VA, IHS | State Public Health, CDC | Provider | Delegates proper reporting requirement to HIE (quality, cost)<br>Reduction in administrative costs of processes, systems and infrastructure for reporting to multiple requesters (e.g., CDC, State Health) (cost)<br>NOTE: Need to look at implications of EpiCenter being used at hospitals and urgent care facilities today |
| Public Health Reportable Lab Result | GP, ER, Hospital, Retail clinics, DoD, VA, IHS | State Public Health, CDC | Provider | Delegates proper reporting requirement to HIE (quality, cost)<br>Reduction in administrative costs of processes, systems (i.e., NEDSS) and infrastructure for reporting to multiple requesters (e.g., CDC, State Health) (cost)<br>NOTE: NEDSS is normally used, but it is not functionally properly. |
| Payment Status | Payor | Provider or third party | Provider or third party | Utilizes standard ANSI X12 4010/5010 transaction<br>Leverages existing communications and registration services for EDI |
| PACS Images | Care provider, Diagnostic imaging center | Care provider, Diagnostic imaging center | Requesting provider<br>Payor<br>Medicaid | Optimize continuity of care (quality)<br>Better patient service/ experience (quality, market)<br>Reduction in administrative time (cost)<br>Reduce duplicative diagnostic imaging costs and patient exposure to radiation |
| Telemonitoring Uploads (e.g., glucometer readings, heart monitors, sleep monitors, etc.) | Patient | GP, Accountable Care Organization, Managed care organization | Patient<br>Insurance/Owner of Care Risk<br>Pharmaceutical Company? (underwriter of device and related supplies) | Improve wellness of individual by early identification of declining condition prior to acute or emergency situation<br>May enable new lines of care services by providers |
| Patient Visit Summary & Care Instructions | GP, Primary Care provider, Retail Clinic | Patient | Sender (%)<br>Payor (%)<br>Medicaid (%) | Reminder of health status and care instructions given following visit (market)<br>Improved compliance with care prescribed care protocols (quality, cost)<br>Reduction in patient calls for clarifications (cost) |
| Patient Alert | GP, Primary Care provider, Retail Clinic | Patient | Sender | Timely communications related to care process (e.g., lab results delivered)<br>Better patient service/experience .(quality, market)<br>Reduction in administrative time (cost) |
| Family Member Alert (assumes Family Member consent or like) | GP, Primary Care provider, Retail Clinic | Family Member | Family Member<br>Patient | Timely communications related to care process for family member (e.g., elderly parent care visit, diabetic child blood sugars elevated)<br>Summary of health status and care instructions given following family member visit (quality, cost, market) |

* Denotes services directly supporting Stage 1 meaningful use.

Successful deployment and adoption of the Nevada DIRECT Secure Messaging Service initiative will be the first service to be offered as part of the approach in achieving long-term sustainability. While the revenues associated with DIRECT Messaging are expected to be relatively low dollar value, the process of validating, contracting, and enrolling participants will generate a "customer" population to which additional services will be offered; the next of which will likely be core HIE services including query based access to patient data.

In the **Figure 8-5**, the column headings have the following meaning:

- **HIE Service.** The rows identify unique HIE services designed to enable patient data sharing or enable participation in the HIE "economy of services".
- **Service Recipient.** Identifies the organization(s) and/or individuals that will benefit from the service being provided by the NV-HIE Business.
- **Potential Service Payors.** Identifies the organization(s) that are candidates to pay for the service directly or indirectly.
- **Value Proposition.** Partial list of the value the transaction will provide to one or more of the players in the transaction. The intent is to outline why the transaction should be paid for.

**Figure 8-5: Event/Subscription Based HIE Services**

| Event/Subscription Based HIE Services | Service Recipient | Potential Service Payors | Value Proposition |
|---|---|---|---|
| Provider Enrollment | Registering provider | Registering provider | The list of providers with EMR systems will be known to the health community<br>Facilitates electronic sharing of patient data between providers |
| GP EMR (SaaS) | Registered Medicaid Provider | Registered Medicaid Provider | Enables Medicaid and non-Medicaid providers access to a EMR solution that is integrated to the NV-HIE services<br>Delivers 'meaningful use" capabilities<br>Low cost option for PCPs without existing EMR systems |
| Broadband Services | Care Delivery Organizations | Care Delivery Organizations | Provides access to high speed network for connectivity needed to participate in the HIE and other related programs<br>Support for the care delivery organizations in the rural and frontier geographies of Nevada |
| Health Insurance Exchange (HIX) Shared Services | State of Nevada, Silver State HIX (SSHIX) | State of Nevada, Silver State HIX (SSHIX) | Services implemented by NV-HIE that can be utilized by SSHIX as a shared service thereby reducing the initial investment to be made by SSHIX. Potential service areas include: Provider Directory/EMPI; Person Directory/ EMPI/Identifier; Secure Messaging; Care Data Access (if needed); Consent Management (if needed) |
| RHIO/HIE Registration | Registering RHIO/HIE | Registering RHIO/HIE | The list of RHIOs/HIEs will be known to the health community<br>Facilitates electronic sharing of patient data between providers |
| RHIO/HIE Certification | Requesting RHIO/HIE | Requesting RHIO/HIE | Ensures that RHIO/HIE participating in the NV-HIE and eHealth Exchange will be operating within the standards and governance rules agreed within the state |

| Event/Subscription Based HIE Services | Service Recipient | Potential Service Payors | Value Proposition |
|---|---|---|---|
| Trusted Infrastructure Subscription | Registered providers and RHIOs/HIEs | Registered providers and RHIOs/HIEs | Trusted Infrastructure enables communications and understanding of health data transactions:<br>Message Registration Service: Identifies the message standard(s) supported by NV-HIE for use by a sender/receiver for each specific transaction type (e.g., Reno PCP Practice sends/receives HL7 V2.5 lab orders/results with LOINC)<br>Translation Service: For HIE parties that are not able to communicate via the selected NV-HIE standard message implementations, a translation service would be used to make the transactions understandable for sender and receivers. |
| Public Health Summary / GIS Mapping | HIE Business | Requester | Access to Public Health Threat Trends in form of geographic mapping |

Prior to engaging the stakeholders, the state will begin an initial assessment of the HIE Services to be offered and the potential revenue these services would offer the NV-HIE Business. The resulting outline business model will be used to establish NV-HIE Business as a nonprofit or trust operating in the state. **Figure 8-6** depicts one of the assessment models to be used in evaluating the HIE Services opportunities and **Figure 8-7** presents some of the assessment criteria to be considered in this initial assessment and market evaluation of the services.

**Figure 8-6: HIE Evaluation Assessment**

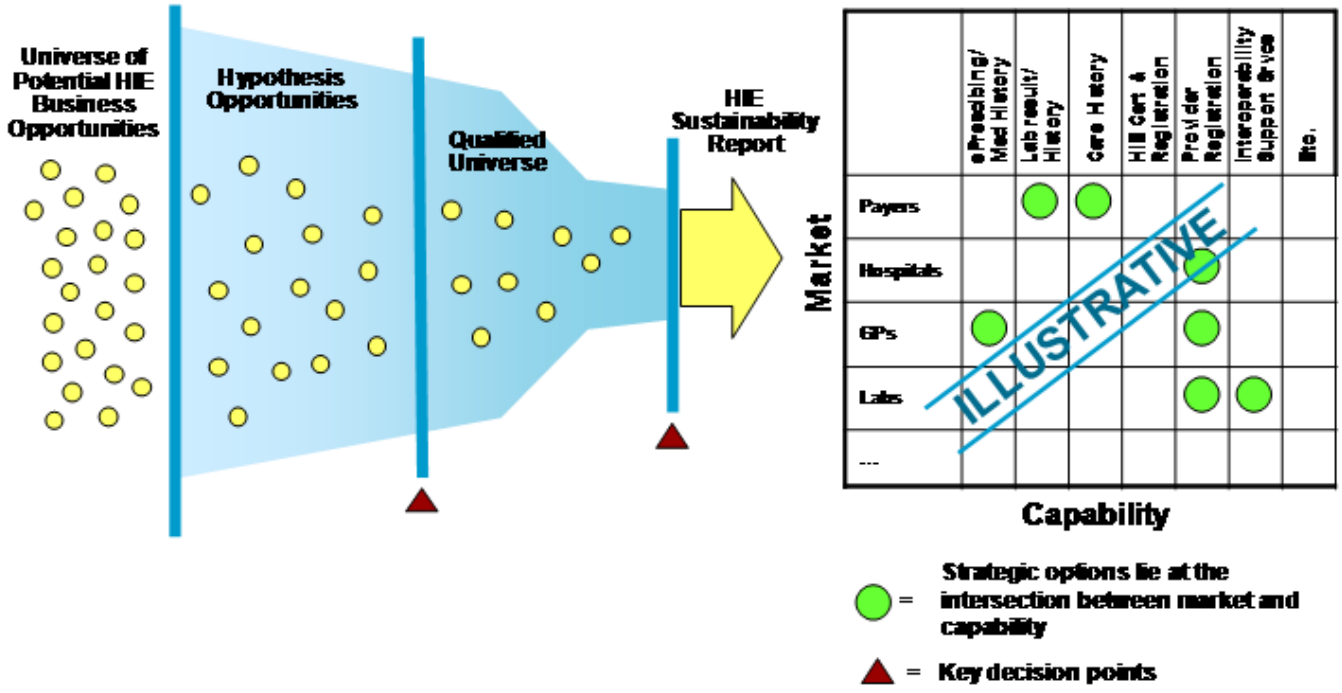
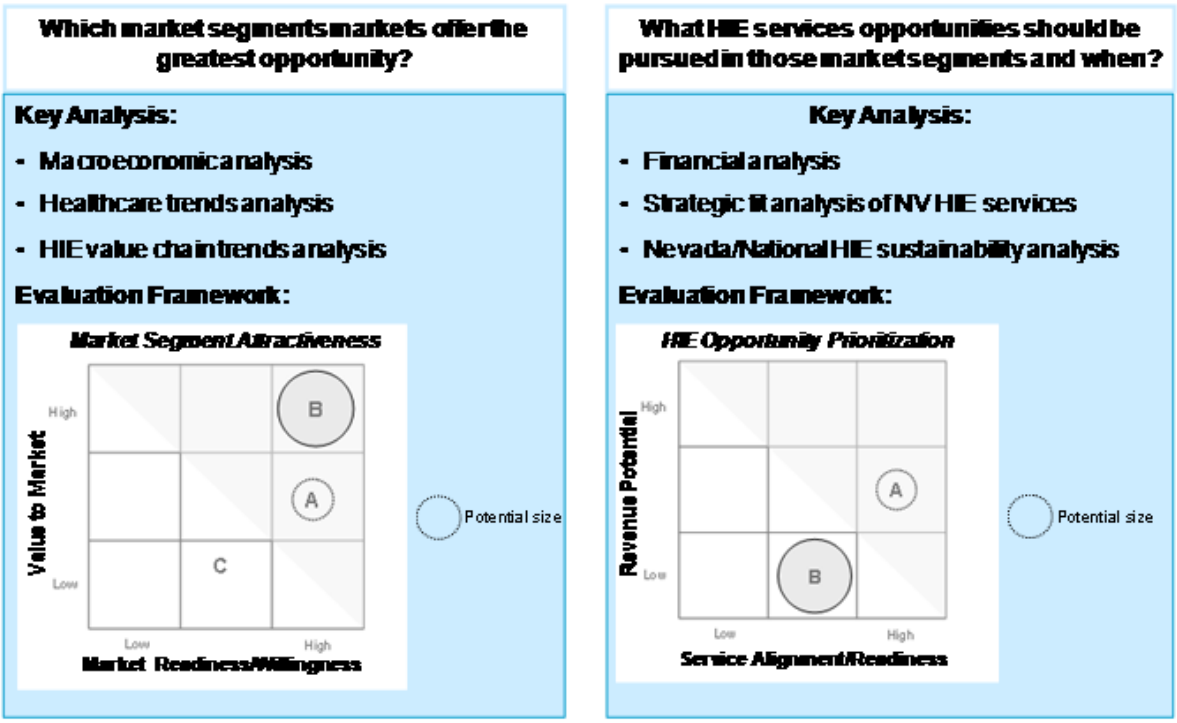


**Figure 8-7: HIE Service Assessment Analysis Models**




## 8.6.2 Stakeholder Onboarding Plan

Parallel and in iteration with the development of the NV-HIE service portfolio, NV-HIE will develop a stakeholder onboarding plan. This onboarding plan will map the different stakeholders groups (e.g. hospitals, physicians, labs, public health organizations, etc.) to be connected to the statewide HIE system and which services they will subscribe to over time. **Figure 8-6** is an example of NV-HIE Onboarding plan. The plan will be a useful tool to target stakeholders in connecting to the statewide HIE system, but also the estimate future revenues.. NV-HIE will develop and populate the plan in collaboration with the Board of Directors and apply guidelines that will ensure a conservative but realistic view of its future financial sustainability. Key considerations include:

- Subscription of services: In the first year of on boarding it is most likely that stakeholders will only subscribe to the core service to experience the benefits of an HIE and the value it delivers to their organization. After that organizations might consider Value Added Services to expand their subscription.
- Implementation time: Depending on provisions set out in the agreement it is most likely that participant will not pay for services before the integration with the NV-HIE is accomplished. A time window of two to four months should be taken into consideration after signing the agreement before revenues will start to flow into NV-HIE.

- Critical mass: It will be helpful to determine the critical mass of participants connected to the HIE before the HIE reaches its potential value. It can be assumed that on boarding of participants will increase after that number has been reached.

**Figure 8-8: Example HIE Stakeholder Onboarding Plan**

| Stakeholder On Boarding Assumptions | Total # of stakeholders | 2013 | | | | 2014 | | | | 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 |
| **Provider-Based Networks** | | | | | | | | | | | | |
| RHIOs and statewide aggregators | 5 | | | 1 | | | | | | | | |
| Large IDNs (more than 1,000 beds, non-RHIO affiliated) | 5 | | | | | 1 | | | | | | |
| Mid-sized IDNs (between 600 and 1,000 beds non-RHIO affiliated) | 2 | | | | | | | | | | | 1 |
| Large, independent practices (more than 100 providers) | 2 | | 1 | | | | | | | | | |
| Large FQHC | 3 | | | | | | | | 1 | | | |
| Large Rural Clinics | 1 | | | | | | | | | | | |
| Large Free Clinics | 1 | | | | | | | | | | | |
| Local Health Department (70 sites on 1 system, 15 on separate systems) | 2 | | | | | | | | | | | |
| **Qualified Organization Cummulative Total** | **21** | **0** | **1** | **2** | **2** | **3** | **3** | **3** | **4** | **4** | **4** | **5** |
| **Estimated Number of Physicians Connecting to NC HIE by QO type** | | | | | | | | | | | | |
| RHIOs and statewide aggregators (varying number of providers per org) | 1,000 | | | 1,000 | | | | | | | | |
| Large IDNs (varying number of providers per IDN) | 500 | | | | | 500 | | | | | | |
| Mid-sized IDNs (varying number of providers per IDN) | 200 | | | | | | | | | | | 200 |
| Large, independent practices (more than 100 providers) | 200 | | 200 | | | | | | | | | |
| Large FQHC (approximately 50 providers per clinic) | 300 | | | | | | | | 300 | | | |
| Large Rural Clinics (approximately 50 providers per clinic) | 100 | | | | | | | | | | | |
| Large Free Clinics (approximately 50 providers per clinic) | 500 | | | | | | | | | | | |
| Local Health Department (90 FTEs total across 85 sites ) | - | | | | | | | | | | | |
| **Total Added per Quarter** | | **-** | **200** | **1,000** | **-** | **500** | **-** | **-** | **300** | **-** | **-** | **200** |
| Add estimated growth of connected physicians within Qos over time | 721 | | - | 5 | 29 | 30 | 43 | 44 | 45 | 53 | 55 | 56 |
| Annual physician adoption percentage | 10% | | | | | | | | | | | |
| **Estimated Number of Physicians Connected to NV HIE Cumulative Total** | **3,521** | **-** | **200** | **1,205** | **1,234** | **1,764** | **1,807** | **1,851** | **2,196** | **2,249** | **2,304** | **2,560** |
| *Percentage of Nevada Physicians Connected to Statewide HIE* | **74%** | *0%* | *4%* | *25%* | *26%* | *37%* | *38%* | *39%* | *46%* | *48%* | *49%* | *54%* |
| **Ancilary Data Sources** | | | | | | | | | | | | |
| Large Radiology Centers (more than 5 sites) | 8 | | | 2 | | 2 | | 2 | | 2 | | |
| Large Indep Laboratories (more than 5 sites) | 4 | | 2 | | 2 | | | | | | | |
| Commercial Payers (6 largest plans) | 6 | 1 | | 1 | | | 1 | | 1 | | 1 | |
| Medicaid | 1 | | 1 | | | | | | | | | |
| **Cummulative Totals** | **19** | **1** | **4** | **7** | **9** | **11** | **12** | **14** | **15** | **17** | **18** | **18** |

## 8.6.3 NV-HIE Cost Model

In addition to exploring various ways to fully exploit the HIE revenue potential, NV-HIE's cost model deserves some attention as well. A way to look at the expenses of an operational HIE is to distinguish costs related with operations, core services and value added service. **Figure 8-9** shows an overview these costs components.

**Figure 8-9: NV-HIE Cost Model Components**

| Operations | Core Services | Value Added Services |
|---|---|---|
| • Facilities and Operations | • Development and Implementation | • Licenses |
| • Finance | • Technology Operation and Hosting | • Implementation and Setup Costs |
| • Human Resources | • Solution Development Services | • Hosting Costs |
| • Personnel | • Software Licenses | • Support and other costs |
| • Legal Services | • Integration Costs | |
| • Marketing | | |

NV-HIE costs strategies will be aligned with its overall strategy and should provide guidance on costs justification, distribution of cost, and ability to invest in gap filling areas. Some primary costs strategies to be explored are as follows:

- Balance of internal versus external labor: What is a healthy balance in budget for external hiring versus staffing the organization?
- Manageable streams of work: Smaller stream of work will likely be easier to manage and will decrease an overrun on integration and deployment budgets
- Avoid duplicate costs: Allocate costs where they make sense, in a highly federated deployment approach less NV-HIE staffing will be required.
- Partners: IT Vendors, health plans and other organizations could be a partner in the HIE by investing or mitigating risks.
- Self-funding value added service: Add on or value added service should be self-funding or even profitable as the existing infrastructure and operations can be leveraged while deploying these services.

## 8.7 Financial Sustainability Implementation Considerations

As Nevada progresses with its financial sustainability model development, there are several key considerations that will be taken into account in its implementation. The following is the current list of those considerations:

- The HIE Service prices will be based on the value that these services deliver to the State of Nevada health care system.
- HIE Service value must be determined using a fact based approach that is supported by data that is sourced from trusted parties. The approach will be transparent to all parties involved.
- The process will be supported by independent organizations that have no special interests in the outcome. For example, Dr. Dana Edberg and Dr. Jean Wendel at University Nevada, Reno (UNR) will bring the business intelligence and health economics capabilities to help with business model discussion/viability meeting, along with a Broadband meeting, that will be hosted by OHIT.
- The process will be difficult. For some parties, the costs will be incremental to their existing business. In such situations, the potential conflict will be addressed by finding new opportunities for that party which will either lower costs and/or introduce new revenue bearing services.
- It will be essential that the valuation or pricing of services be affordable.
- The NV-HIE Business will require supporting financial systems to manage, monitor, and report costs and revenues associated with costs and revenues of the business.

## 8.8 Next Steps

The process of establishing the NV-HIE organization was started with the May 2012 announcement of the Board of Directors. Now that the Board has refined and approved its Bylaws, the members will start working with stakeholders and committees to operationalize the NV-HIE business. One of the key efforts will be to develop a more detailed business model. Some of the activities being planned include:

- Develop and finalize the initial NV-HIE Business Sustainability Model for 2013 – 2016. This will include core services and value propositions by customer segment and related revenue streams, identification of other revenue stream in terms of donations, gifts and sponsorships, and other grants, and defining the NV-HIE cost model;

- Board Workshops were conducted to refine the sustainability strategy, and receive input and buy-in for NV-HIE Business Model. In addition, these workshops helped determine an action plan and working method to transfer the NV-HIE Business Model into the NV-HIE Business Plan by mid 2013; and
- The NV-HIE executive team, with support of NNDA, will be developing and finalizing NV-HIE Business Plan.

# 9 Business and Technical Operations Approach

The operation of the NV-HIE will be the responsibility of the NV-HIE Business, a 501(c)3 governance and technical operations nonprofit organization operating and governed by the laws of Nevada. This Business will be accountable to the Nevada DHHS through a contract that will align with the State HIE Cooperative Agreement between Nevada and ONC. Pursuant to state laws and policies, the original approval of this plan by ONC and passage of Nevada SB43 (both occurring in 2011), the NV-HIE Business and governing board has been named and the organization itself is currently being established at the time of this update (refer to May 29, 2012 News Release: "Nevada Health Information Exchange Board is Created and Inaugural Board of Directors is Announced, http://dhhs.nv.gov/HIT.htm).

Presently, the technology and solutions approach to HIE connectivity will take place in two major steps. In that the NV-HIE nonprofit governance and technical operations organization is not yet ready to assume management of day-to-day operations of the statewide HIE;

- The first step was the deployment of DIRECT Secure Messaging (NV DIRECT), launched May 2013, and which initially will be managed by the State OHIT. Contract, planning, and design work has been completed for this implementation, and at the time of this writing is expected to conclude pilot operations with early adoptors in June 2013.
- Immediately following the state's initial implementation of NV DIRECT - as it is ready and becomes operational, the NV-HIE nonprofit governance and technical operations organization will then assume day-to-day NV-HIE management – and all aspects of NV DIRECT messaging will be transitioned from the state to the NV-HIE late 2013 as part of the robust HIE solution.

Once established and operational, the state expects the NV-HIE 501(c)3 nonprofit organization to indeed operate as a financially and technically self-sustaining business enterprise. The state further anticipates that the operational aspects of the business will be organized into three broad streams of work:

- Governance Operations;
- Stakeholder Operations; and
- Business & Systems Operations.

The organizational structure and operational aspects of the business are defined in Section 13. The financial sustainability and operational elements are described in Section 8.

Successful management of the State HIE Cooperative Agreement requires an optimal blend of centralization, monitoring, and reporting for effective HIE oversight. OHIT will ensure growth and HIE adoption by meeting State HIT Plan objectives while staying compliant with HITECH and other federal and state requirements. The State HIT Coordinator will manage risks and controls in a comprehensive and cost-effective manner, while having visibility into the HIE implementation status with the nonprofit organization and business. In the event of control failures, the NV-HIE organization will have notification mechanisms and mitigation procedures in place – and a protocol of accountability back to the state as to the status and resolution of all issues, actions, remedies specific to any problematic event. To facilitate and support higher level decision making, visibility into the performance of controls and their impact on specific risks will be enabled.

Policies will be established to help ensure the NV-HIE organization meet and stay current with the regulatory requirements that are relevant as they guide the expectations and behavior of the HIE implementation team and all deliverables. The NV-HIE organization must ensure that the policies are:

- Properly designed to meet HITECH and regulatory requirements;
- In compliance with applicable federal and state laws and guidelines (including ARRA, HITECH, and Nevada SB 43);
- Communicated clearly;
- Monitored and revised on a continuous basis; and
- Enforced and violations quickly detected and remediated.

Nevada will work with NV-HIE to establish standards and processes for monitoring and reporting the State HIE Cooperative Agreement and ongoing execution of the State Health IT Plan. These standards and processes will fully support coordination of all tasks/activities and components necessary to meet HITECH requirements in coordination with the NV-HIE Business. This will include the provision of timely information exchange that will help optimize project status reporting and communication needs, and help mitigate risks and the costs of implementation. All of this will facilitate the controlled and predictable execution of the State Health IT Plan, as OHIT and the NV-HIE Business communicate effectively, share knowledge, manage documents, resolve issues, and provide transparency regarding statewide HIE implementation and program progress.

# 10 Technical Architecture and Approach

At the outset of connectivity initiatives for the statewide HIE system, the first connections will be deployed over the spring and summer of 2013 via state administered and managed NV DIRECT secured messaging. This is an initial service to facilitate and enable stakeholders to be early NV-HIE adopters and successfully fulfill requirements for meeting Stage 1 meaningful use. This state management and deployment of NV DIRECT is an interim deployment step while the NV-HIE is established and becomes operational.

The state will continue to manage NV DIRECT connectivity until such a point when the NV-HIE 501(c)3 governance and technical operations nonprofit organization takes over all business and day-to-day operations – this will require that any services then managed by the state (e.g. DIRECT) will be transitioned over to the 501(c)3 for all management and support going forward.

This section will discuss in vendor agnostic terms, the manner in which the state's full-service, robust HIE will be architected by the vendor(s) solution(s) of choice as selected by the NV-HIE nonprofit governance and technical operations organization. The NV-HIE organization will follow any applicable requirements to acquire/purchase any of the needed vendor services and solutions (i.e,. in compliance with any state and federal guidelines). The NV-HIE is in the process of finalizing its RFP for the robust HIE solution as of this update. It is expected that the NV-HIE will have a fully negotiated contract with its selected HIE vendor by the end of August 2013.

The NV-HIE technical infrastructure and architecture will be constructed as a set of integrated services that will follow the principles of service oriented architecture (SOA), industry interoperability standards, and in compliance with MITA. Deploying this architecture will allow a growing number of HIEs, EHRs, RHIOs, HISPs, hospitals, labs, imaging centers, and payors,etc., to use and benefit from the services that will be available across the NV-HIE environment.

The NV-HIE will utilize and/or promote proven and (where required) ONC certified HIE technologies (i.e. certified EHR solutions) that will support integration/communication with HIEs, EHRs, RHIOs, HISPs, hospital and provider electronic medical records (EMRs), labs, imaging centers, and payors through the use of transaction messaging. This enterprise solution platform will enable a view of a comprehensive, electronic longitudinal view of a patient's medical record.

The NV-HIE will provide enabling functionality such as authentication, Enterprise Master Patient Index (EMPI)/Master Data Management (MDM), consent registry/management and a privacy and security framework, database services, integration services, record locator services, interface services, and industry leading EMR/EHR and HIE connectivity.

In the future, it is expected that NV-HIE services will include a number of web-based services that will assist in utilizing and sharing unified patient information across the care community – providing ease of authenticated and accountable access to information, appropriately so, by providers, consumers, and those entities within the patients continuum of care.

**HIE Requirements**

The NV-HIE will connect, share, and exchange health information from multiple disparate sources across the entire Nevada health care community, across state lines as necessary, and with other state and federal agencies – including providing gateway connectivity to the eHealth Exchange. The NV-HIE will support clinical workflow applications that increase efficiency and allow clinicians to deliver more complete, timely and safe care. Patient information from across the Nevada health care community, including physicians' practice,

hospital, payor, safety-net clinic, and pharmacy information systems will provide a single access point to patient integrated electronic medical records, anywhere at any time.

The NV-HIE will support e-Prescribing services including access to patient prescription histories, prospective drug utilization review and alerts (e.g., drug-drug and drug allergy interactions, duplicate therapies) and the secure transmission of prescriptions directly to the pharmacy.

The NV-HIE will be rich in functionality with features that will eventually include a clinical workflow manager, medical records browsing and management, transcription review and electronic signature, evidence based physician order entry, advanced clinical decision support, clinical documentation, multimedia second opinion consultations, secure messaging, image viewing, and HIPAA-supportive privacy and security compliance.

Working from unified patient records enables clinicians to effectively activate care plans and implement best practices and evidence-based medicine at the point of care, helping ensure more complete, timely and safe care. In addition to clinical work-flow, the NV-HIE will also enable communication among physicians, their staff, and other health care providers, both within and between organizations, in a HIPAA-compliant manner that integrates seamlessly with clinical practice workflows. User interfaces will combine ergonomics and an intuitive flow. This attention to intuitive ease of use and process efficiencies will facilitate user satisfaction and fosters clinician adoption, an essential aspect to the success, viability and longevity of the project.

The NV-HIE will also connect and serve those health care providers and organizations in the state that offer essential health care services in the technology and connectivity challenged remote regions of Nevada's "frontier" communities. Teaming and/or collaborating with organizations like the state's Broadband Task Force, Nevada Rural Hospital Partners, the Nevada REC, state agencies and communications companies, and clinical laboratory companies like Quest Diagnostics and Lab Corp, Nevada has already prioritized that the connectivity challenges and enabling requirements to meet meaningful use of the health care providers in these remote communities will be resolved. And as stated in the opening paragraph of this section, the earliest connectivity will be enabled by DIRECT secure messaging, deployed and managed initially by the state.

**NV-HIE Outreach Portal**

A critical element of NV-HIE strategy to build adoption among stakeholders (including providers and beneficiaries) is the use of the web as a means to create awareness, provide compelling content about the program and its successes, and create means for various user communities to exchange lessons learned and share knowledge. As part NV-HIE's ongoing services, and also leveraging existing Nevada public access portals, "outreach" as a service will be available across the NV-HIE community through portals/web access already available, and accessible in Nevada state public buildings such as libraries, community centers, education facilities and through general WWW access for anyone who can access the web from their own computers and mobile devices.

**Shared Services**

Common applications and other NV-HIE services that can be shared from the central HIE platform as a way to gain efficiencies, affordability/economy for all NV-HIE stakeholders, will be an objective of the NV-HIE. The state's "frontier" classification for much of its physical land mass is a compelling consideration for shared services as well as the economies of scale advantages to be realized by all participants. Achieving scalable, extensible architecture in order to share common platforms, applications, and services mitigates risk, reduces costs, and enables some services and platforms to be used on an as needed basis further improving overall efficiencies and cost for the entire Nevada health care community. This approach to shared services also

facilitates interoperability, and an accelerated, economical path to realizing ongoing directives and objectives of meaningful use.

Shared service can:

- Improve efficiencies, manifested in a reduction in cost, and more importantly, a safe, higher quality, and improved outcomes of patient care and the patient experience.
- Eliminate duplicative and unnecessary activities, processes, and testing.
- Realize economies-of-scale.
- Leverage common and existing technology.

Additionally, properly engineered, hosted, and deployed shared services are inherently qualified SOA components. SOA represents open, easily scalable, extensible architecture that promotes service-orientation and is comprised of autonomous, QoS-capable, vendor diverse (agnostic), interoperable, discoverable and iterative reusable services. The additional benefits of a SOA environment include:

- Increased intrinsic interoperability.
- Increased business, clinical, and technology domain alignment.
- Flexible concurrent architectural models and configurations (federated, centralized, combination/hybrid).
- Increased ROI.
- Increased vendor/solution options.
- Reduced/consolidated IT efforts/resources.

## 10.1 Deploying NV-HIE Across the Nevada Health Care Community

The key to successfully deploying a statewide HIE system and services, is creating a comprehensive, engaging community strategy. Health care delivery is a local endeavor. Adapting that process to best accommodate the community—providers and consumer/patients alike—will be the driving factor of the goals, objectives, and manner in which the state will deliver HIE to its health care patient and provider community. The success of the NV-HIE will not be driven or measured simply by technology - but by how the HIE technology, strategy, and planning around the unique needs of the state health care community improves the health care experience and outcomes for the state's patients, and overall gains in process efficiencies and delivery quality across the Nevada health care continuum. This helps ensure the state delivers a service to the community that is fine-tuned, flexible, and responsive to the needs and challenges of those HIE customers—improving their experience, improving their care, and benefiting the community as a whole. This will be the driving principle(s) by which the state will strategize, build, and deliver the HIE and services to the NV-HIE community.

To this end, also, the state is engaging methodologies and best-practices for communications and organizational change management (OCM) – where by the state's HIE needs will be assessed situationally across the state stakeholder community, the consumer/patient community, as well as the State OHIT itself – so as to better prepare for and execute on the upcoming HIE program outreach, processes, connectivity, and capabilities. Communications/OCM is further discussed in Section 13.5.

## 10.2 NV-HIE Architecture

The specifics and detail of the architecture to be deployed for Nevada will be developed by the NV-HIE 501(c)3 nonprofit governance and technical operations organization (governing entity) over the course of the next several months. Currently, the NV-HIE architecture is envisioned to be a community driven SOA approach to organizing and implementing the NV-HIE services that depicts a functionally accurate rendering for early strategic planning purposes. The architecture will be finalized upon determinations and selections of solutions applications by the NV-HIE nonprofit organization.

The HIE architectural framework depicted in **Figure 10-1** provides for maximum flexibility, adaptability, and comprehensive capability. It is agnostic to specific branding and technology – but purposefully intends to promote interoperable systems architecture and the flexibility for the NV-HIE environment and platform to grow and evolve. Core NV-HIE services as well as future services to be incorporated over time will be organized and deployed from within this framework and technical strategy. From a more conceptual perspective, **Figure 10-2** provides a model to how the end users will view the NV-HIE.

**Figure 10-1. NV-HIE Business Cloud / Framework Architecture**

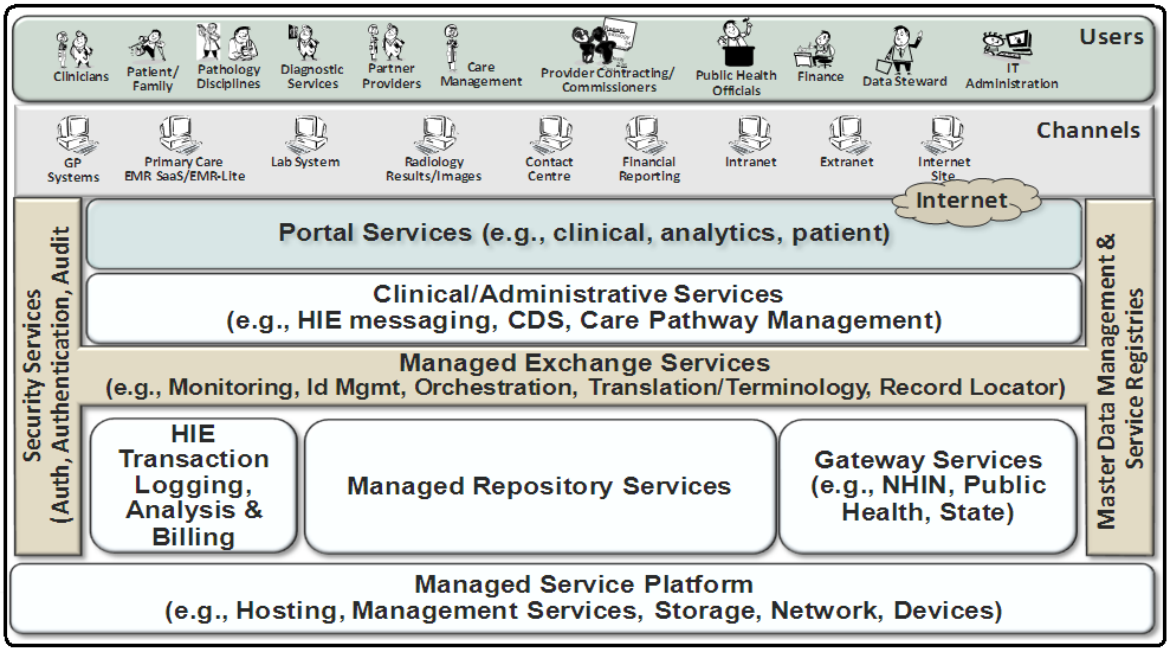
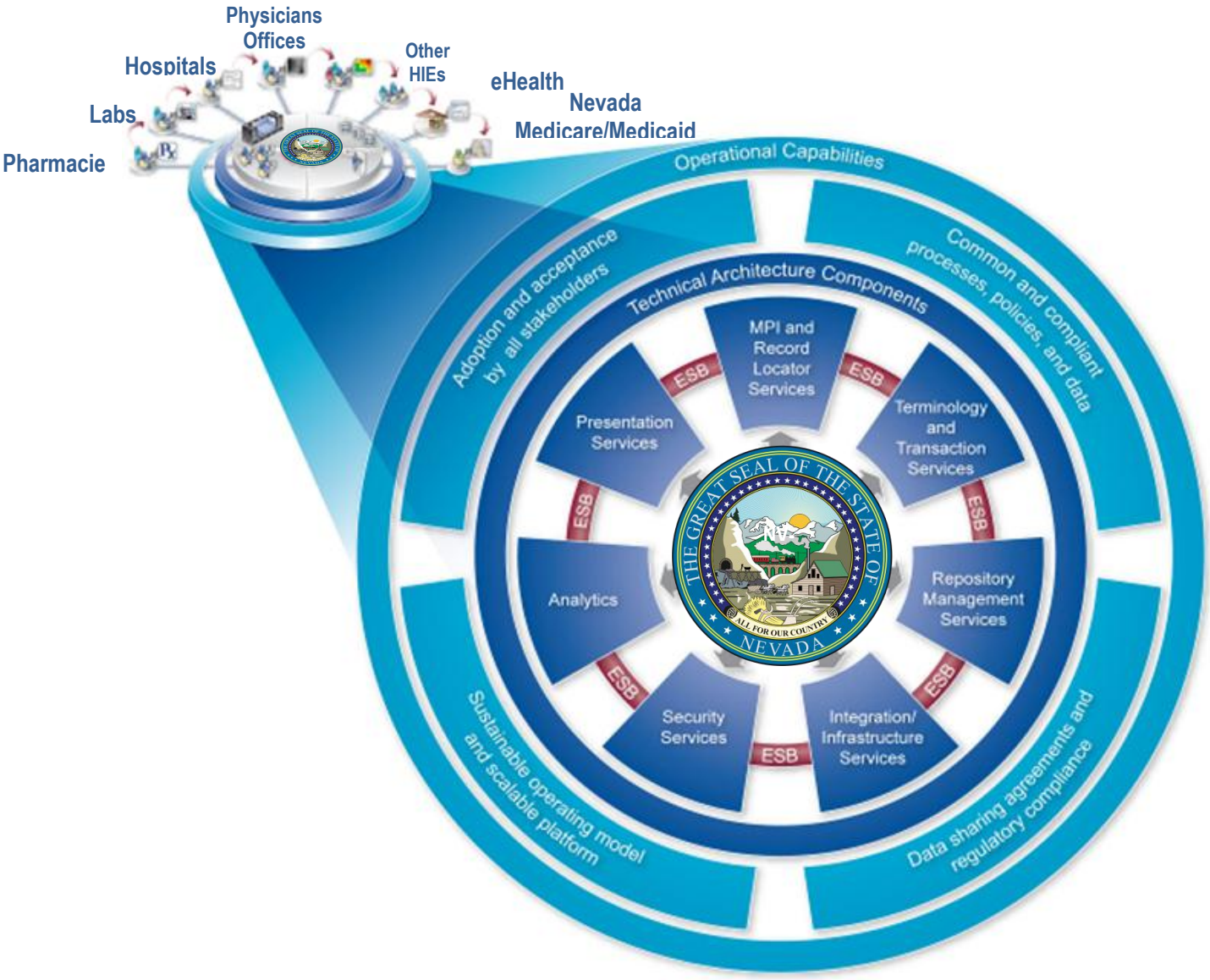


**Figure 10-2. NV-HIE Example of Proposed HIE (User View) Functional Architecture**




*The NV-HIE architecture and solution will encompass a wide range of polices, practices, and technologies required to allow health care stakeholders and facilities to interconnect, the NV-HIE to evolve and grow, and patients to have a safer and improved care experience and outcomes.*

Some of the key characteristics and capabilities of this architecture and technical strategy include:

- Enable realization of meaningful use by all Nevada providers with initial priority for those eligible for incentive payments. (Though the robust HIE solution will support meaningful use functionality – as stated above, the initial capabilities for meeting meaningful use will be facilitated by NV DIRECT secure messaging services which will be deployed and managed, initially, by the state, and available beginning May 2013).

- Hybrid federated/centralized patient database and clinical data repositories.
- Patient and/or stakeholders maintain local control and ownership of their data.
- Scalable, iterative/reusable, flexible, adaptable, and extensible architecture and engineering principles.
- Enable accelerated path to achieving interoperability including across participating State agencies.
- Enable accelerated path to realizing meaningful use (in addition to DIRECT secure messaging).
- Facilitate near term, ongoing, and long-term needs for Nevada's Medicare/Medicaid population and information services.
- Integrate directly with formularies.
- Support of meaningful use connectivity services, (initially enabled and deployed via state managed NV DIRECT secure messaging) in provider and hospital settings, facilitating:
    - e-Prescribing;
    - Electronic laboratory orders and results (structured lab data); and
    - Continuity of Care Document / Clinical Summary exchange for care coordination and patient engagement.
- Data, vocabulary, and nomenclature normalization as part of NV-HIE core services.
- PACS/radiology results (notes and imaging) online – architecture and access to PACS related data is TBD until the HIE infrastructure is finalized.
- Access to medication and care history minimizing duplicate tests, avoiding unneeded or otherwise ill-advised treatments due to incomplete or inaccurate information.
- Provide near-real-time assessments of patients via care guidelines to identify treatments, diagnostic scans, and utilize clinical decision support (CDSS) applications.
- Share care data with all participating providers for those patients being seen throughout a patient's continuum of care settings and providers, thereby avoiding duplicative care and potential fraud.
- Provide a comprehensive Enterprise Master Person/Entity Index (EMPI) and Master Data Management (MDM) solution(s) that includes:
    - Beneficiary identity management which will result in a MPI of beneficiaries that will not include duplicates (a known issue with Medicaid data throughout the U.S. which costs tens of millions each year), and all required, HIPAA compliant privacy and security capabilities;
    - Identity management for all providers, clinicians, and users of the HIE that ties into registries, secure and authorized system access/usage, relationship management (providers to hospitals, patients to providers, etc.);
    - Identity management of all entity organizations participating in the HIE (hospitals, clinics, Labs, IPAs, etc.);
    - This comprehensive identity and registry management process is more commonly known now as Master Data Management (MDM) – or – Community/Enterprise Master Entity Index. See **Section 10.3.1.9 – Community/Enterprise Identity Management Services and Registries,** (CMEI/EMEI) - for more on this functionality; and

  - Patient consent registry and management at the statewide level as part of the EMPI/MDM core services.

- Enable care managers to identify individuals suffering from chronic conditions who need to be cared for in proactive manners to avoid high cost acute care.

**Local Data Providers/Consumers**

Participating provider organizations within a community can act as data providers, data consumers or both. For example - a hospital might act as a provider of ADT data, but act as a consumer of outpatient clinical data such as lab results or medication history when treating a patient presenting in the emergency department.

In the near term, physicians will more likely be data consumers, rather than data providers given the nascent implementation of EMR applications. This will change as EMR applications are deployed and adoption increases as a result of support from Nevada's Regional Extension Center, NV-HIE outreach programs and outlets. Other community based participating organizations could include other ambulatory providers such as radiology facilities, regional labs or outpatient surgical centers.

**Statewide Data Providers/Consumers**

There is an opportunity to leverage data providers that serve patients across the state such as commercial labs. Another state asset that will be leveraged is clinical informatics. The NV-HIE will establish a clinical informatics center as a service and will be an important data, metrics, and information source for the NV-HIE community. The NV-HIE informatics center will incorporate information sources to support initiatives such as real-time hospital data, point-of-care treatment and medication data, laboratory results, and Medicare claims, and enable direct access to information by qualified, authenticated, providers authorized by care protocol and/or patient consent to be involved in direct patient care.

## 10.3 Guiding Principles

- The NV-HIE architecture will be flexible and adaptable to accommodate existing and emerging HIE implementation scenarios.
- The NV-HIE will be developed as a business, upon appropriate business principles, and upon a financially sustainable model supported by various recurring revenue streams and revenue generating opportunities/services. Like any other business, revenue sources and value-added service will be identified, developed, grow, and evolve over time.
- Must be aligned with meaningful use criteria as defined by the federal government.
- Architecture must accommodate and be compatible with eHealth Exchange core services and specifications.
- The NV-HIE platform design will be vendor and technology agnostic—SOA will be compatible with but neutral to major HIE vendor SOA systems platforms.
- Privacy and security services will comply with all HIPAA requirements and applicable federal, state and local (where applicable) regulations.
- HIEs across the NV-HIE community (within the state) will be able to exchange health information and connect to the eHealth Exchange through the NV-HIE shared services environment.
- Access and exchange services will be provided in order to leverage any existing statewide information assets when available and appropriate.

- It is expected that other state agencies such as Medicaid and SSHIX initiatives will work collaboratively and cooperatively with OHIT in leveraging common assets, resources, objectives, and goals in order to optimize and economize overall HIE needs within the statewide environment.

## 10.4 Nevada HIE Services

The initial set of NV-HIE services envisioned will include those described in the sub-sections that follow. They are categorized into two primary areas: Core Services and Support Services.

### 10.4.1 Core Services

#### 10.4.1.1 Stage 1 Meaningful Use Enablement

The NV-HIE will align its implementation priorities with the current federal definition of "meaningful use" to ensure that all providers within the NV-HIE are able to demonstrate meaningful use, with special attention to those providers that are eligible for incentive payments.

The following immediate priorities are delineated to support all NV-HIE provider stakeholders for meaningful use:

- Electronic public health reporting.
- Connectivity services enabling:
    - e-Prescribing;
    - Electronic laboratory orders and results (structured lab data); and
    - Continuity of Care Document (CCD - HL7) / Continuity of Care Record (CCR - ASTM) / Clinical summary exchange for care coordination and patient engagement.

Initially, eHealth Exchange Direct mediated secure messaging services will be given priority and implemented in an expedient manner in order to ensure HIE capabilities to support and facilitate Stage 1 meaningful use by end of 2012. These DIRECT services will initially be deployed and managed by the state, until such a time when the 501(c)3 organization is ready to assume day-to-day statewide HIE governance, business, and technical operations.

#### 10.4.1.2 Direct Project

From the initial implementation of NV DIRECT messaging deployed by the state, through the transition of these services to the NV-HIE organization, the NV-HIE will be prepared to continue to facilitate, administer, and manage NV DIRECT connectivity within the HIE program indefinitely for those stakeholders requiring basic secure email as the approach to information sharing.

1. Assist in the eHealth Exchange Address Registry Process by enabling the NEVADA REC to provide necessary technical assistance.
2. Documentation of guidance and advice for acquiring a digital certificate, enabling the secure email point-to-point "push" messaging supported by the DIRECT Project.
3. Implementation of message routing and connectivity services within the NV-HIE infrastructure and interface platform.

#### 10.4.1.3 Integration Services

The NV-HIE will support the required and expected "middleware" information processing functionality that is required of a fully functional HIE.

- **Enterprise Master Person/Entity Index & Master Data Management (EMPI/MDM)** - is a service for managing common data, people, and assets across single or multiple entity enterprise systems, to maintain the positive identity and individual integrity these data, people, and assets. And, the EMPI/MDM will also manage the access and relationships of these entities to each other. See section **10.3.1.8 Community/Enterprise Identity Management Services and Registries** for additional information.
- **Information/Identity Correlation Services (ICS) -** is a service that works hand-in-hand with the EMPI/MDM processes to identify, for example, a person/patient and gathers the appropriate demographics for that person and identifies all locations within the enterprise where this person has had care services performed. Within an HIE, for example, when doing a query on John Smith, based on the relationship of the entity doing the query to the patient, the ICS process will check against each hospital, clinic, or physicians system to find all points where the patient/person has had care activity. Then, depending on the objectives of the query, the process will most likely engage the ILS/RLS service to complete the query task(s). See **ILS/RLS** immediately below for more information.
- **Information/Record Locator Services (ILS/RLS) -** is a service that, for example, works in tandem with the ICS service (explained above in the ICS description)… the ICS after having responded to a query and identifying a patient and locating all hospitals, physicians, clinic systems (and others) where this patient has had care services, the ILS/RLS will now poll each of the identified systems where the patient has received care and retrieve all of the care records at each location to be associated and returned in the query for that patient (i.e., lab results, medications, clinical notes, and other information will be gathered and delivered with the query).
- **Interface Engine (IE) -** is a service which is a collection of data and message processing functions that manage the accurate transport and transition of messages between a host system and the clients that send and/or receive these transmissions with the host system.
    - Message Router – is a sub-service of the Interface Engine that identifies message/data origin, destination, and mapping/translation characteristics.
    - Translation Engine – is a sub-service of the Interface Engine that translates inbound and outbound data/messages from to and from the host system, from any data protocol to any data protocol, so that the data being communicated between client and host system maintains its meaning and integrity during the transfer/transmission.
    - Data Normalization – is a sub-service of the Interface Engine that facilitates such data normalization tasks that, in the case of an HIE, engage processes like SNOMED, LOINC, possibly eLINCS, and others as needed.
    - Error/Exception handling – is a sub-service of the Interface Engine that, for example, can handle recognizing and tracking communications errors between the host system and clients, possibly data inconsistencies, and other types of electronic and data problems, and communicates, logs, and properly issues alerts to resolve or assist in resolving errors and exceptions that occur within the interface processes.

- **Data Processing Business Rules Engine (BRE)** – is an integration service that manages and allows for modifications to common processing requirement without having to intervene in or otherwise engage IT services to modify application level processes to affect this type of change/characteristic. Business rules commonly change more frequently than the source application code, so BREs take on the integration level systems role of plug-and-play software components that execute business rules which have been externalized from application source code. This approach enables the system as a whole to be more adaptable with business rules that can be changed dynamically and executed at run-time.
- **Business Process Execution Language (BPEL)** – is an integration service which provides for the orchestration of multiple discreet, exchangeable, and extensible executable processes that involves message exchanges with other systems and subsystems within the host architecture, such that the message exchange sequences are controlled by this BPEL orchestration process. The BPEL enables central control of the behavior of a distributed system(s) operating within the host architecture.

#### 10.4.1.4 Database Services

The NV-HIE will provide basic database storage, retrieval, and handling services, typical of what would be expected of a health care information environment. The representative database services include:

- Data Schema Handling (HL7-2.x, HL7-3.x, ASTM, XML, others);
- Data Warehousing (which may facilitate any date retention or reporting requirements);
- De-identification and Anonymization Data Services (i.e., facilitates HIPAA mandates for privacy); and
- Statewide consent registry and directory service.

#### 10.4.1.5 Interface Services

The NV-HIE will provide interface services to all appropriate NV-HIE stakeholders, such that transmitting and/or receiving data within the NV-HIE in compatible formats will be enabled by the interface and data protocol services. Representative interface services include:

- Clinical Data Sources (including labs, pharmacies);
- PACS/Imaging Data;
- Physician Offices;
- Claims Data;
- Public Health and Emergency Management;
- DIRECT Project Connectivity;
- Other HIEs/HISPs/RHIOs; and
- eHealth Exchange Gateway.

#### 10.4.1.6 Provider Registry/Directory Services

The NV-HIE will provide HIE stakeholder/provider registry and directory services as needed to administer and manage participation and credentialing into the HIE environment and related services.

#### 10.4.1.7 eHealth Exchange Gateway Service

The NV-HIE will provide gateway services and connectivity to the eHealth Exchange for independent community HIEs. From the state's perspective, this is not intended to preclude other HIEs from becoming a HIE if they qualify and are certified. Nevada will continue to work closely with ONC on this point as it is expected that the ONC will establish standards that HIEs must meet to become and remain a certified HIE.

#### 10.4.1.8 Community/Enterprise Identity Management Services and Registries

The NV-HIE will deploy a **community** or **enterprise** master entity/person index (CMEI/EMEI). More than just a Master Patient Index, the CMEI provides for the reconciliation of all entities across the community (including patients, providers, facilities, other HIEs and HISPs, and organizations) to make sure that unique entities appearing in multiple systems are synchronized across applications, and manages and maintains NV-HIE registries. This helps to ensure the integrity of the patient's medical information and helps to ensure its accuracy and completeness, while maintaining the relationships between persons and entities within the HIE continuum. As data from various interfaces is processed into the system, a set of rules is utilized to determine if each data element in the transaction already exists in the database and if so how the updates should be applied. This allows for the customization of both deterministic and probabilistic rules on an interface-by-interface basis. These rules are utilized to check each entity against those already stored/indexed in the system and perform the appropriate updates/additions to those records as dictated in the transaction, or create new records as needed. Once an initial match based on attributes (for a patient, for example, attributes like name, address, gender, date of birth, etc. might be used) is made, then the sending system's local identifier is retained to allow subsequent reconciliations to occur more quickly on the basis of that identifier alone.

#### 10.4.1.9 Clinical Data Content and Messaging Services

The following clinical document content types will be used as the standards for exchanging information within the NV-HIE environment. A standards workgroup may be created to review and assess standards such as listed below, and make formal recommendations to the governance entity as to their implementation and compliance.

- **Summary Documents.** The recommended standard for Summary Documents is the Continuity of Care Document (CCD), defined by HL7, and profiled by HISP and the eHealth Exchange Cooperative. CCD documents will be created to encapsulate information from a single "patient encounter". The Medication History and Allergies document can also be encoded using the HL7 CCD. NV-HIE will, however, also accept the ASTM Continuity of Care Record (CCR).
- **Structured Laboratory Messages.** Lab results should be encoded as described in the IHE XD-Lab Document standard. Although lab results can be included in the CCD, the XD-Lab document has specific profile elements that describe how to encode unique elements related to the laboratory domain, such as the origin of specimens and the relationship between the specimen and the results. CLIA compliance will also be maintained.
- **Personal Health Records.** PHR documents will be encoded using the HL7 CCD and/or the other compliant formats when the corresponding data type is being presented. This capability should be developed to support the ARRA requirement that health information about a person in electronic form be transmitted to that person in electronic form upon request.
- **Scanned Document.** Scanned Documents should be encoded as described in the IHE XDS-Scanned Document profile. This profile describes encoding a PDF document or plain text document as binary-encoded data inside the "non-structured" section of a CDA document. This standard calls for the use of the same structured metadata that applies to other document types to apply to scanned documents, allowing for robust searching and management of this inherently unstructured data.

- **Radiology Reports and Images.** X-Ray reports and images will follow the content standards prescribed by the standards of the Digital Imaging and Communications in Medicine (DICOM) protocol, including the DICOM Structured Reports standard for reports. The format for images may follow the DICOM standards, or may simply use images viewed in a web browser, depending on the protocols used for exchanging these images.

#### 10.4.1.10 Coded Health Care Vocabularies Services

Providing health care data in a common structured format is the first step in enabling an EMR system to process and understand information created in a different EMR system. To enable complete "semantic" interoperability, a common vocabulary must be used between the two systems. Standard health care vocabularies, often referred to as "coded" vocabularies, because of their use of alpha-numeric codes rather than english words or mnemonic phrases, are used to represent such concepts as symptoms, diagnoses, laboratory tests and results, admission types and medications.

A set of standard vocabularies have been published by the same standards agencies that defined the document formats. Adoption of these vocabulary standards is likely not achievable in the short term. Nonetheless, the NV-HIE will set a target for the use of standard health care vocabularies wherever possible, and will assist providers, their vendors and community HIEs in achieving compliance with these vocabulary standards. The use of these common coded vocabularies is necessary to move beyond the mere exchange of health care information towards a more robust use of health care information in both treating individual patients and in analyzing population data to discover trends, track outcomes and improve quality.

The NV-HIE will provide a health care vocabulary as a shared service that can be accessed by all participants. This service can serve as a centralized "reference" repository for the vocabulary standards recommended for use in the NV-HIE, and can also provide translation services to map non-standard vocabularies to the recommended standards.

#### 10.4.1.11 Patient/Consumer Smart Media Technology

Nevada may implement HIPAA-compliant "health information" smart media technology (smart cards, flash drives, cell phone / mobile patient medical apps) for those individuals who choose to not allow their health information to be exchanged via an HIE.. Nevada Medicaid and PEBP already use a type of electronic identification card, and are interested in something more substantive, like a smart card. The Nevada Legislature has also expressed interest in an electronic identification card to expedite insurance claims processing. It is possible that the smart card, and/or other personal smart (HIPAA compliant) media technology becomes a core service that could be offered to all Nevada residents.

Even though smart cards, for example, have been around in their current form for at least a decade, they are just starting to take off in the U.S. While a smart card resembles a credit card in size and shape, inside it is completely different. Unlike a credit card with basic consumer information encoded into the magnetic strip, a smart card includes a chip with more robust and sophisticated technology. The chip on a smart card usually contains a microprocessor and some memory, which replaces the usual magnetic stripe on a credit card or debit card. Though magnetic stripe technology remains popular, the data on the stripe can easily be read, written, deleted or changed with off-the-shelf equipment. Therefore, the stripe is really not the best place to store sensitive information. To protect the consumer/patient, the microprocessor on the smart card maintains secure encryption and other secure capabilities to protect personal identifiable and health information.

The potential HIPAA-compliant smart media could be configured to include personal health information, access authorization for electronic health records, health insurance information, current lab results, radiology images, advanced directives, etc. Pursuant to Senate Bill 278 (2011), DHHS conducted a feasibility study during the

third calendar quarter of 2012 regarding patient/consumer smart technologies. Based on the results of the study, DHHS concluded that the deployment of a statewide "chip-and-PIN" smart card system for personal health and insurance information could best be done through the private sector, with regulatory oversight by DHHS and the Division of Insurance through already-authorized abilities to promulgate regulations. The NV-HIE business plan includes "chip-and-PIN" smart cards as a possible supporting service offering, in coordination with the existing deployment strategies and efforts of Nevada health insurance providers and to meet the needs of health care providers, patients, and other stakeholders.

### 10.4.2 Support Services

The NV-HIE will provide the services necessary to operate and maintain a functioning HIE including:

- Operations Management following ITIL processes and standards (24x7x365)
- Technical and End-User Help Desk (24x7x365)

Aspects and details regarding support services will be developed and put in place as a task and responsibility of the NV-HIE 501(c)3 nonprofit governance and technical operations group, expected to be actively assuming overall management of the state HIE later in 2013.

# 11 Legal / Policy Approach

During his State-of-the-State Address to the Nevada Legislature on January 24, 2011, Governor Brian Sandoval included economic development, jobs creation, and health care when citing his top policy priorities. In particular, he noted the expansion of broadband as being a driver, stating, "We must continue to drive investment in broadband technology that fast-tracks job growth and provides a platform for spurring innovation across our state. My budget includes $3 million to help residents of rural Nevada use broadband access to start and grow businesses, or telecommute to anywhere in the world. These improved broadband connections will also allow **the electronic exchange of health information** between providers and hospitals to improve the quality of care." Combined with key economic and workforce development initiatives that Governor Sandoval plans to implement, these policies will provide needed support for EHR adoption, HIE implementation and meaningful use.

Pursuant to the requirements of the HIE Cooperative Agreement, a general statewide Health IT Regulatory and Policy Inventory and Health IT Medicaid-focused Regulatory Inventory were done to ensure state regulatory and policy harmonization with HITECH requirements (see **Appendix D**). The objective of the inventories was to identify regulatory and policy barriers and gaps for EHR implementation, achieving meaningful use, HIE patient consent and privacy, and enabling HIE. Also included was the research and review of relevant HIT/HIE legislation enacted or proposed by other states. Key findings were used to draft Senate Bill 43 (**Appendix B**), a health IT omnibus bill requested by DHHS that was passed by the Nevada Legislature during its 2011 session. During the life of the State HIE Cooperative Agreement, OHIT will use Cooperative Agreement funds to promulgate the necessary health IT regulations.

Senate Bill 43 had five goals. First was the establishment of the DHHS Director as the State HIT Authority, with the power to promulgate necessary regulations. Second was the establishment of the HIE governance entity to meet HITECH requirements and the HHS Federal Security and Privacy Framework. The third goal relates to EHRs. While Nevada has many provisions in place regarding the creation and maintenance of electronic medical records and the protection of electronically transmitted PHI, the certified EHR systems required by HITECH, along with the ability for HIE, require new provisions regarding the maintenance and retention of EHRs, supporting HIE and meaningful use requirements, and safeguarding individual privacy and unauthorized access. It is the responsibility of the DHHS Director to promulgate regulations establishing the necessary standards. Fourth, certain existing provisions seem to be a barrier to the electronic prescribing of medications, and need to be amended in order to meet federal requirements and support meaningful use. Finally, patient consent is required for electronic transmittal of health records via electronic health information exchange. Patient's rights are specified, and the DHHS Director is required to promulgate regulations establishing standards for the security and confidentiality of electronic health records and health information exchange in alignment with applicable federal laws. Senate Bill 43 also contains provisions making it a misdemeanor to commit certain acts related to EHRs and HIEs and providing immunity from liability for providers who with reasonable care rely on information received from an apparently genuine and EHR through an approved HIE to make patient care decisions.

While Nevada legislators had some familiarity with HIT, EHRs and the State HIE Cooperative Agreement, DHHS was successful in helping them understand HITECH requirements and key advantages:

- Utilization of EHRs and HIE is expected to reduce duplicative tests and procedures, improve health care quality and patient safety, and increase the efficiency of health care administration and provision of services.

- Enhances continuity of care communications between rural and urban hospitals, and rural and urban providers.
- May enhance statewide public health surveillance capabilities, resulting in more real-time identification and mitigation of disease outbreaks and emergency health situations.
- Over time, as advanced directives and living wills are automatically incorporated into a patient's electronic health record and patient information provided via HIE, the need for the Living Will Lockbox may no longer be necessary.
- Allows individuals to quickly and easily access their personal health information electronically and monitor accuracy.

The Nevada Legislature, during its 2013 session, passed Assembly Bill 344 (AB 344). For advanced directives that meet certain statutory requirements, the Secretary of State, with the person's consent, can deposit the advanced directives in Nevada's statewide HIE system. DHHS has already been working with the Secretary's office to determine how the NV-HIE's eMPI and Master Provider Directory can be leveraged to address this new statutory provision. AB 344 has been signed into law by Governor Sandoval, and is effective October 1, 2013.

# 12 Privacy and Security Frameworks

The state is committed to building a statewide HIE technical infrastructure, policies, practices, and channels of communication that protect the privacy and security of Nevadans' health data. The privacy and security frameworks articulated in this section will guide the implementation and are directly aligned with Privacy and Security Frameworks guidance provided by ONC-PIN-003. This section will also highlight the additional measures for carefully managing IIHI, and communicating details to the community as set forth in various Nevada state regulations/laws.

Within chapters and sections of the Nevada Revised Statutes (NRS), the state has put in place laws and safeguards regarding the handling of sensitive, confidential information – including as IIHI – and the practices and channels to communicate and make detailed information available to the community at-large. These issues regarding security and communications can be found throughout many chapters of the NRS.

As a result of Nevada's compliance with its own laws and guidelines, the state is specifically complying with and/or otherwise satisfying points around privacy and security frameworks and practices as set forth in ONC-PIN-003.

The following table is extracted directly from ONC-PIN-003, Privacy and Security Framework Requirements and Guidance for the State Health Information Exchange Cooperative Agreement Program. And, the data in the table below reflects how the state is responding to these guidelines from both ONC and the state's own laws and regulations.

| Domain | Description of approach and where domain is address in policies and practices | Description of how stakeholders are made aware of the approach policies and practices | Description of gap area and process and timeline for addressing |
|---|---|---|---|
| **Openness and Transparency** | NRS 439.588(3) | • NRS 241 – Open Meeting Law<br>• NV-HIE Communication Plan | No gaps identified |
| **Collection, Use and Disclosure Limitation** | NRS 439.589-590 | • NV-HIE Participant Agreement<br>• NV-HIE Communication Plan | No gaps identified |
| **Safeguards** | NRS 439.588-592 | • NRS 241 – Open Meeting Law<br>• NV-HIE Participant Agreement<br>• NV-HIE Communication Plan | No gaps identified |
| **Accountability** | NRS 439.588-590 | • NV-HIE Participant Agreement<br>• NV-HIE Communication Plan | No gaps identified |

Key points regarding the interim nature of the Privacy and Security Framework described in this document:

- The strategic intent of Nevada's privacy and security framework is to adopt the selected HIE vendor's Privacy and Security Framework. The selection of the HIE vendor will be the responsibility of NV-HIE. The pro forma timeline for the selection and implementation is described in Section 14 of this document.
- At the time of the update to this version of the Strategic and Operations Plan, the NV-HIE Communication Plan and NV-HIE Participant Agreement have been drafted with the intent that the state

will develop draft versions which will be finalized by the NV-HIE organization once it is fully established and staffed. The development of the Participant Agreement will include obtaining stakeholder input and commitment to the safeguards (e.g., physicians need to be comfortable with safeguards approach). In addition, the Participant Agreement will be developed with guidance and input from Nevada's State Attorney General's Office. The current NV DIRECT Participant Agreement is provided in Appendix L of this Strategic and Operations Plan, and will be the basis for the agreement needed for the more robust HIE services.

- Meeting Collection, Use and Disclosure Limitation domain requirements will be achieved through the State Regulations necessary to augment what already exists throughout Nevada law. NRS 233B and NAC 233B define Nevada's rulemaking process, which mandates stakeholder and public input. For clarity, stakeholder input to regulation development is expected to begin during the second calendar quarter of 2013. Pursuant to state law, the formal process will be initiated during the third calendar quarter of 2013, with the adoption and enrollment being completed during the second half of calendar quarter of 2014, Development of policies and procedures will be defined by NV-HIE according to the pro forma project plan described in Section 14 of this document. Initial guidelines for this domain are included as Appendix M of this Strategic and Operations Plan.
- The initial guidelines for meeting Safeguards domain requirements (e.g., risk/vulnerability assessment and mitigation, HIE message encryption, contractor/vendor authorization/access controls) have been developed by the state and can be found in Appendix N of this Strategic and Operations Plan.
- The initial guidelines for meeting Accountability domain requirements (e.g., monitoring/detecting security threats, security incident response, breach notifications, trading partner requirements) have been developed by the State and can be found in Appendix O of this Strategic and Operations Plan.

Additional information regarding all chapters and full text of the Nevada Revised Statutes (NRS), including the NRS passages cited in the table above, can be accessed online at: http://www.leg.state.nv.us/nrs/.

The secure electronic exchange/sharing of health care information between providers, payors, and patients is a of the core objectives of efficient economical service provisioning and data stewardship in the health care industry and public sector – and must be a hallmark feature of any enterprise HIE. The state will continually drive the privacy and security aspects of NV-HIE by researching, adopting, and applying, when appropriate, the best of industry privacy and security frameworks and practices. HIEs are expected to raise the bar on the need to provide information to providers, payors, and patients and to share information securely across many different types of networks, and the data protection requirements of HIPAA, FISMA, HITECH, and other data protection state and federal regulations. Nevada is already engaged in researching advanced solutions for potential deployment by the NV-HIE that provide FIPS 140-2 certified AES-256 bit encryption and EAL4+ certification for the most effective protection of both data in motion and data at rest, ensuring patient health information confidentiality, integrity and availability. The state references the following in this regard:

- **FISMA** – Federal Information Security Management Act (for non-military government agencies and contractors)
- **FIPS** – Federal Information Processing Standard (versions adopted by ANSI, IEEE and ISO)

- **AES** – Advanced Encryption Standard (adopted by NIST)
- **EAL4+ –** Evaluation Assurance Level 4+ [the highest assurance level for evaluating security framework that is recognized globally by all signatories under the Common Criteria Recognition Agreement (CCRA)]

For additional information on specific points regarding the state strategy for privacy and security frameworks, refer to Sec 4.3.4 of this document.

# 13 Implementation and Operation Approach

The performance of the work identified and described in this section will be the responsibility of the state 501(c)3 nonprofit governance and technical operations organization. As such, any detailed plans will ultimately be devised by the NV-HIE nonprofit organization and will be published and made available by this organization at the appropriate time after it commences operations later in 2012. That being the case, this implementation and operation approach is a summary of the state's expectations as to an implementation approach and strategy that the 501(c)3 nonprofit governance and technical operations organization may likely take.

This section, then, describes the major elements of how NV-HIE would implement and operate the strategic elements of the plan. Due to the overlap of the strategic domains, and in accordance with ONC-PIN-002, Requirements and Recommendations for the State Health Information Exchange Cooperative Agreement Program, the NV-HIE Implementation Approach is structured by the major phases of the implementation.

**Figure 13-1** depicts phases of the end-to-end lifecycle of the NV-HIE Business formation, HIE development/implementation, and ongoing operation along with the organizations accountable and responsible for the delivery. This figure provides the context for understanding the effort anticipated for establishing and forming the NV-HIE Business, a significant and important process in launching the 501(c)3 nonprofit governance and technical operations organization as a self sustaining business enterprise. Per the Cooperative Agreement, and mentionedabove, further detailed planning and resource allocations will be devised and made available following the formation of the NV-HIE nonprofit organization. At the time of this update, the organization's board of directors and interim chair person have been named, and the organization will take shape and commence operations over in the coming months. As stated in earlier sections of this document, the state will provide and manage DIRECT Secure Messaging services in the mean time in immediate support enabling providers to meet Stage 1 meaningful use at their earliest opportunity beginning in July 2012.

For clarity, 'accountable' is intended to mean that while the accountable organization has oversight and contractual obligations for delivery of that stage of work, it is not necessarily responsible for the performance of the activities that encompass that stage. The 'responsible' organization is obligated to perform the work defined within the assign stage/activities/tasks and according to the direction of the accountable organization.

**Figure 13-1: NV-HIE Implementation and Operation Approach**

| Delivery Organizations → | Nevada DHHS / OHIT | NV-HIE Business (incl. Board of Directors) | Service Vendor(s) | HIE Technology Product Vendors |
|---|---|---|---|---|
| **Phase 1 – Initiation** | | | | |
| Stage 1 – Governance Definition | Accountable / Responsible | Not Involved | Supporting | Not Involved |
| **Phase 2 – Creation** | | | | |
| Stage 2 – Governance Implementation | Accountable to ONC / Responsible for NV-HIE Delivery | Accountable / Responsible | Supporting | Not Involved |
| Stage 3 – Business Model Definition | | Accountable / Responsible | Supporting | Not Involved |
| Stage 4 – Technology Definition & Selection | | Accountable / Responsible | Accountable / Responsible | Not Involved |
| Stage 5 – HIE Solution Integration & | | Accountable | Responsible OR | Supporting OR |

| | | | | |
|---|---|---|---|---|
| **Deployment** | | | Supporting | Responsible |
| **Stage 6 – Technology & Application Products** | | Accountable | Supporting OR Responsible | Responsible OR Supporting |
| **Phase 3 – Operations** | | | | |
| **Stage 7 – Governance & Operations Oversight** | | Accountable / Responsible | Supporting | Not Involved |
| **Stage 8 – Evolution, Operations & Maintenance.** | | Accountable | Supporting | Responsible |

Within this section, the following subsections will describe the work to be performed within each stage of the approach:

- Section 13.1—HIE Business Formation – Stages 1-3.
- Section 13.2—Stage 1 Meaningful Use Implementation Plan

  (For the purposes of this first update to the State HIT Plan, Section 13.2 will remain in its current position within the document. However, as has been noted throughout this updated plan, the State OHIT will actually be taking the first implementation steps of the overall NV-HIE program by deploying and managing DIRECT Secure Messaging Services, enabling providers a path to attaining Stage 1 meaningful use as early as July 2012. The state will continue to provide and manage these initial DIRECT services until such a time when the 501(c)3 nonprofit governance and technical operations are ready to assume all day-to-day business and technical operations of the NV-HIE. In the meantime, the essential objectives of each of the sections described here remain the same. At the time of this update, the 501(c)3 nonprofit organization's board of directors and interim chairperson has been announced by the state, and the HIE business, under the direction of the newly assembled board, will continue the initial formation of the NV-HIE business entity in parallel with the state's management of the initial DIRECT Secure Messaging Services.)
- Section 13.3—HIE Development – Stages 4-6.
- Section 13.4—HIE Operations – Stages 7-8.

## 13.1 NV-HIE Business and Governance Formation (Stages 1-3)

As noted at the outset of this document, Nevada believes the most important aspect of the program is to establish a sustainable NV-HIE Business that will deliver on the objectives and plans agreed upon with ONC that deliver value to the residents and businesses of Nevada. The formation of the NV-HIE Business (the 501(c)3 nonprofit governance and technical operations organization) will implement the varied aspects described in portions of **Section 7** (Governance), **Section 8** (Financial Sustainability & Management), and portions of **Section 9** (Business & Technical Operations Approach).

In addition to the importance of having a sustainable, nonprofit business to govern and operate the HIE services, the NV-HIE Business organization will establish the essential "rules of the road" necessary to implement the information sharing technologies of the envisioned NV-HIE services.

For example, how will Nevada residents opt-in ,and possibly opt out later, of having their data shared across the HIE? While this may appear simple on the surface, the question is non-trivial when considering the various channels that may need to be afforded to the individual (e.g., customer portal, primary care office, emergency

room, hospital, pharmacy) and how to make patient information providers aware that data sharing is not allowed for a specific individual (with the exception of reportable public health requirements and certain Medicaid/Medicare alternatives). It is these information governance and other similarly complex requirements that will need to be understood and established prior to implementing HIE technologies or certifying existing HISPs/RHIOs for supporting HIE services in the state.

To provide a baseline understanding of the envisioned NV-HIE Business, **Figure 13-2** lists the key principles that will guide the formation and operation of the NV-HIE Business as well as the operational and service characteristics of the NV-HIE Business.

**Figure 13-2: Principles and Characteristics of the NV-HIE Business**

| Principles of the NV-HIE Business | Characteristics of the NV-HIE Business |
|---|---|
| • Facilitates the exchange of personal health information for improved wellbeing of individuals seeking care in Nevada<br>• Operates within the state defined HIE governance model<br>• Works with other state and commercial entities to implement the NV-HIE vision (e.g., other ARRA programs)<br>• Utilizes existing and evolving certified HIE/HISP/RHIO businesses within Nevada and does not restrict or otherwise limit their existence<br>• Provides "a safety net HIE services" within Nevada to ensure equal access to health information sharing capabilities for all individuals and their care providers<br>• Operates without ongoing grants from the State of Nevada (i.e., only contractual payments for services)<br>• Facilitates the ongoing evolution of health care in Nevada through new and innovative care information sharing services<br>• Proposes policy and statutory changes necessary to deliver the desired HIE services | • Nonprofit entity<br>• Contracted to the state as an implementing agent of the ONC Cooperative Agreement<br>• Certification authority of HIE/RHIO organizations that wish to participate in the NV-HIEstatewide HIE system<br>• Operates HIE technical solution services that cover the entire state and provides gateway services to adjoining states as well as eHealth Exchange<br>• Provides HIE services for Medicaid patients and their care providers (i.e., no separate HIE for Nevada Medicaid providers/beneficiaries)<br>• Single point of access to Nevada public health (e.g., immunization registry) and vital statistics for use by HIEs and RHIOs operating in Nevada<br>• Operational income from three primary revenue sources: State of Nevada contract(s); subscription/usage fees from NV Certified HIEs and RHIOs; subscription/usage fees from NV-HIE participants (e.g., payors, PCPs, hospitals, RHIOs, etc.)<br>• Close collaboration with the Regional Extension Center (HealthInsight) to deliver commitments of EHR adoption and realization of meaningful use |

The creation and formation of the envisioned NV-HIE Business is complex in the breadth and interdependencies of activities to be performed as well as the number of stakeholders that will be involved. A fully articulated plan administered using robust project management tools and best practices will help guide the state and the nonprofit organization through the phases of building, deploying, and managing this entire statewide program.

**Figure 13-3** summarizes the stages of the overall NV-HIE Business formation approach. This includes a description of key activities within the approach. **Section 14** will provide the overall plan and timing for the NV-HIE implementation program.

## Figure 13-3: NV-HIE Business Formation Approach

| Stage | Major Activities |
|---|---|
| **Governance Definition** | • Use ONC Cooperative Agreement and approved Strategic and Operational Plan to consolidate and refine NV-HIE Business requirements.<br>• Structure requirements for legislative Directives and forming/contracting the NV-HIE Business.<br>• Establish legislative directives based on gaps in existing statutes, develop new directives that will:<br>  ○ Facilitate the creation of the NV-HIE Business;<br>  ○ Enable a commercial environment in which the NV-HIE Business will be self-sustaining during the Cooperative Agreement and beyond;<br>  ○ Enable the legal sharing of patient information in private/secure manner; and<br>  ○ Enable and/or establish the needed technical infrastructure (e.g., broadband services).<br>• Establish the NV-HIE Business.<br>  ○ Request legislature pass a statute to create a NV-HIE Business as a nonprofit public- private partnership (see Key Elements of Recommended Statute to Create Nonprofit Entity as NV-HIE Business below;)<br>  ○ Work withinNevada Health community to guide the identification of leaders and formation of the nonprofit entity; and<br>  ○ Contract with nonprofit NV-HIE Business.<br>• Develop initial HIE Business Model Definition including costs and potential revenue streams for a financially sustainable NV-HIE Business. |
| **Governance Implementation** | • Hire needed staff of NV-HIE Business.<br>• Establish by-laws of the organization.<br>• Establish the HIE Board of Directors (completed, May, 2012 – see news release).<br>• Establish Advisory Committee(s) as needed to gain insights from NV-HIE stakeholders.<br>• Design and implement internal and external policies and procedures necessary to enact governance activity.<br>• Develop detailed plans for collaboration with key stakeholders of the NV-HIE (see Section 6 for list of the stakeholders and strategy for working with them).<br>• Define consumer friendly opt-in/opt-out policies and procedure to be implemented across the Nevada health community and Nevada residents.<br>• Apply to the ONC for authorization as an ONC-Authorized Testing and Certification Body (ONC–ATCB).<br>• Initiate a NV-HIE Business website as a common resource for HIE stakeholders (e.g., patients, hospitals, primary care doctors, payors, etc.) as well as a public forum to post Board meetings and other open forum governance meetings.<br>• Issue communications to stakeholders that establish points of contact and access to information/resources.<br>• Refine state developed NV-HIE Business Model (e.g., operating costs, revenue streams, innovation investments).<br>• Develop and negotiate contracts with NV-HIE stakeholders to establish data use agreements, financial arrangements, mutual service levels, support services, and compliance with information sharing standards.<br>• Design and implement supporting business processes and systems (see 12.5).<br>  ○ Financial management:<br>  ○ Customer relations for opt-out/opt-in, and complaints, etc.; and<br>  ○ RHIO request to operate in Nevada application and certification. |
| **Business Model Definition** | • Develop hypothetical framework of HIE service opportunities that the NV-HIE could offer various stakeholders and assess (i.e., market readiness, market value (willingness to pay), timeline, alignment to NV-HIE development phased approach, etc.).<br>• Develop and populate a detailed health economics framework.<br>Provides estimated value of the HIE services according to the service/ transaction type and the players involved in the HIE service (e.g., provider registration, RHIO/HIE certification, translation services, medication history, e-Prescripting, recent lab data, care referral/history).<br>• Translate HIE service values into potential revenue source options that will sustain the NV-HIE Business. |

| Stage | Major Activities |
|---|---|
| | • Develop and refine estimated NV-HIE Business operating costs.<br>• Conduct workshops with NV-HIE stakeholders to test, validate, refine, and gain concurrence.<br>• These types of services could be assisted in their development by the state's use of OCM techniques and best practices being reviewed and considered at the time of this update. |

### 13.1.1 Nevada Senate Bill 43 (SB 43) - Key Elements of Statutes to Create the NV-HIE Business Entity

The following provides some elements of SB 43 legislation established during Nevada's 2011 legislative session:

- The NV-HIE governance and technical operations organization will be a public-private partner to the state and will be a 501(c)3 nonprofit organization.
- The organization will be accountable to the DHHS Director, as the State HIT Authority.
- Composition of the NV-HIE Business Board of Directors will be in compliance with mandates within the ARRA HITECH Act and State HIE Cooperative Agreement.

Note that the intent of the legislation is also to insulate the NV-HIE Business from impacts associated with state and federal administration changes.

### 13.1.2 State HIT Coordinator Role

The State HIT Coordinator will provide leadership and coordination across the federally funded state programs for the purpose of maximizing the benefits to be realized by the federal and state investments as well as those of the participating stakeholders across the Nevada health care community.

This includes close coordination, collaboration, and cooperation with:

- The state Medicaid Director for items such as incentive payments, enabling Medicaid providers to realize meaningful use, and promoting the use of the NV-HIE in improving care and reducing costs for Medicaid beneficiaries;
- The state's Office of Health Care Reform, and in particular, the current Health Insurance Exchange (HIX) project, so that common resources, efforts, services, and infrastructure can be leveraged as to optimize and economize the state's efforts across these programs;, and
- The state's Public Health authorities so that these state services may participate in and take advantage of all of the health care information networking, informatics, and core services that the NV-HIE will offer.

The current activities and future plans for meeting the ONC expectations for the State HIT Coordinator are as follows:

- ONC expectation—Develop and advocate for health IT policy to achieve Nevada goals:
    - Proactively conducted a full assessment of current policies, statutes, and legislation that are enablers or barriers to the formation and operation of the NV-HIE. This assessment is guiding plans and current activities necessary to remove barriers to data sharing and enable the creation of the NV-HIE Business. Even as SB43 was passed in 2011, this is an ongoing effort to constantly be aware of evolving needs, requirements, constraints, and other challenges to the ongoing NV-HIE operations, and address and resolve these issues preemptively, and proactively.

- Financial sustainability model development will incorporate the use of Nevada's purchasing power and any advantage that may be gained through any strategic partnerships and cooperatives (i.e., the Western States Consortium) that may be formed over the life of this program.
- The support for interstate HIE connectivity will be incorporated into the NV-HIE architecture as a set of gateway services to enable eHealth Exchange connections.

ONC expectation—Coordination of health IT efforts with state Medicaid, Office of Health Care Reform (i.e., the Health Insurance Exchange (HIX) project), public health, and other federally funded state programs related to health IT to synchronize strategies, milestones, plans, and service designs in support of anticipated HIE related services and information needs by each of these state agencies.

### 13.1.3 Establish NV-HIE Board of Directors

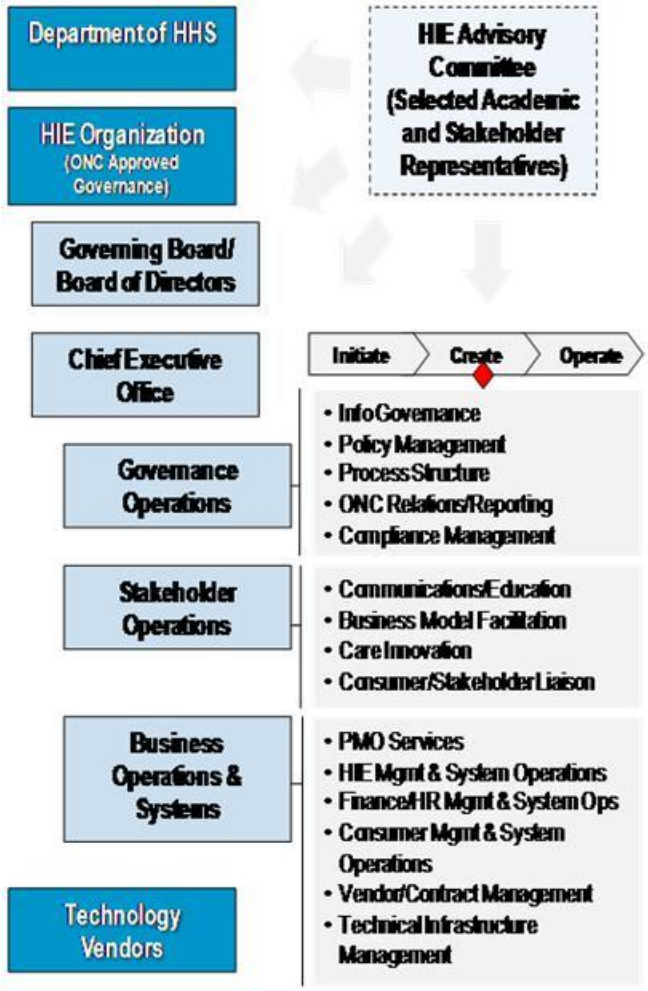
The composition of the first NV-HIE Business Board of Directors has been completed as of May 2012, and followed the direction mandated by the ARRA HITECH Act and State HIE Cooperative Agreement. The Board will operate in a transparent manner, and will provide a neutral governance forum that oversees and governs the exchange of health-related information among public and private entities as well as patients or their representatives. Key elements of the Board responsibilities include:

- Accountable to the members and the public-at-large;
- Establishment of a convening and coordination structure, including personnel and processes, for maintaining transparency and generating multi-stakeholder public-private collaboration;
- Monitoring compliance with nationally-recognized HIE standards, protocols, and processes;.
- Ensuring compliance with state and federal laws including privacy protection, patient choice, and opt-in/opt-out HIE function;
- Oversight of HIE operations;
- Facilitation of consumer/patient input and public communications/transparency and outreach; and.
- Advise and counsel to Nevada DHHS Director as the State HIT Authority.

The composition of the Board members will be based on ARRA HITECH Act and State HIE Cooperative Agreement mandates. The Board will include:

- State Medicaid Agency.
- DHHS Director.
- Health care providers.
- Hospitals.
- Laboratories.
- Health plans.
- FQHCs.
- Public health authorities.
- State agencies (e.g., MHDS, DCFS, Health, Corrections, Insurance, PEBP).
- NSHE and other relevant colleges and universities.
- Consumer/patient representatives.
- Employers and purchasers.
- Clinical research organizations.
- Other users of HIE, such as those involved in the coordination care and care coordination of patients.
- State HHS/HIT ex officio officers.

**Figure 13-4: NV-HIE Governance Model**



### 13.1.4 NV-HIE Business Organization and Staffing

The creation/implementation of the NV-HIE Business organization will ultimately be the responsibility of the leadership of that organization once it is incorporated as a nonprofit operating in the state. The intent of this initial organizational and staffing model is to describe the level of resource needed such that cost estimates can be determined.

The diagram shown in **Figure 13-4** represents a conceptual organizational model of the NV-HIE Business and its relationship to DHHS and external technology and service vendors. As shown, the NV-HIE Business will be governed by a Board of Directors composed of key stakeholders of the NV-HIE who are seen to be both leaders in the state health care community and balanced in their views of the health care delivery changes needed in the state. Their views and input will be provided to the Chief Executive of the business following industry standard governance processes and procedures. See **Section 13.1.2—State HIT Coordinator Role** for more information about the Board of Directors.

The **Chief Executive** will ultimately be accountable to the Board and, via a contractual relationship, the DHHS (the State-Designated Entity of the Cooperative Agreement with ONC). It is envisioned that the Chief Executive will have a significant role in the community representing the NV-HIE across the state with continuous interaction with key stakeholders (as described in **Section 6—NV-HIE Stakeholder Coordination and Collaboration**). Reporting into the Chief Executive will be three operational leads: one for governance, one for external stakeholder management, and one for business and systems operations.

The **Governance Operations Manager** will have the lead role in implementing, monitoring and managing all aspects of policies, legislations, statutes, compliance requirements, and information governance requirements (e.g., information sharing, privacy, security). The governance operations group will support reporting and enforcement requirements to the state and ONC as related to governance requirements and ongoing operation of the NV-HIE. Specific plans for developing and maintaining policies (i.e., bylaws, charter, and/or articles of incorporation) will be finalized during the 3rd calendar quarter of 2011.

The **Stakeholder Operations Manager** will be responsible for developing the plans for and the ongoing engagement of stakeholders such as Medicaid, the REC (HealthInsight), patients/residents, hospitals, diagnostic facilities, PCP practices, health insurance payors, employer groups, the Indian Health Service, the Department of Defense (Health Affairs), and Veterans Affairs. This individual and their team will have the outward facing perspective of the NV-HIE Business. This team will also be accountable for the refinement of the NV-HIE Business strategy including the constant focus on supporting innovations to care services across the care community. This will include research of care innovations being implemented around the world and then adjusting them for proposal to the Nevada health community through workshops and planning sessions leading to implementation of new HIE services and outcome reporting metrics/processes. Finally, this team will be responsible for developing the agreed pricing model for NV-HIE services. The pricing model will be developed in collaboration across the Nevada care community in recognition of the value chain which considers the dynamics of the health delivery process and the associated reimbursement models (i.e., the user of a HIE service may not receive financial benefit, whereas another bystander in the community may realize benefits of the HIE service usage).

The **Business Operations and Systems Manager** will be responsible for the planning and delivery of major operational services of the NV-HIE Business. This work will include:

- Establishment of supporting business systems and processes (e.g., eBusiness cloud/SaaS for email, financials, complaints, registrations, contracts management, etc.).

- Creation and operation of monitoring and reporting services (e.g., tracking effectiveness of HIE to meet meaningful use objectives).
- Registration of providers and commercial RHIOs/HIEs.
- Certification of commercial RHIOs/HIEs/providers that would like to connect to the NV-HIE.
- Contracting with users of NV-HIE services (i.e., subscription, usage, hybrid).
- The development of the HIE technical infrastructure and application services.

Technology and service vendors will be utilized to facilitate the delivery of the HIE and business services outlined above. The vendors will be contracted with directly by the NV-HIE Business.

The initial staffing model for the NV-HIE Business is summarized in **Figure 13-5** with a summary of the key responsibilities and implementation consideration noted previously in this document. This staffing model will be refined as the business model, HIE services, and revenue streams emerge. The final staffing model and associated costs will be the responsibility of the NV-HIE Business. As already mentioned, as of May 2012, the first board of directors and chairperson has already been announced by the state – the information in Figure 12-5 will serve as guidance going forward.

**Figure 13-5: NV-HIE Business Staffing Model (Initial Version)**

| Organization Component | Head Count | Key Responsibilities and Considerations |
|---|---|---|
| **Board of Directors** | 7 plus 3 ex officio | • Participation on a voluntary basis.<br>• Composition based on ARRA HITECH Act and State HIE Cooperative Agreement mandates.<br>• Will be comprised of stakeholders who will be selected to form a balanced representation of the Nevada care community (e.g., public health, Medicaid, commercial hospitals, payors, employer groups, unions, diagnostic service providers, and state residents. |
| **Chief Executive Officer** | 2 | • Essential individual hired into the Chief Executive role will be respected and trusted in the Nevada care community.<br>• Accountable to the NV-HIE Board of Directors as well as the State HIT Authority for the fulfillment of the ONC Cooperative Agreement.<br>• Responsible for proper engagement of the NV-HIE Board of Directors. |
| **Communications and Stakeholder Management** | 1 | • Responsible for overall communications strategy as well as content development of NV-HIE Business website and all Press Releases.<br>• Works with Chief Executive to sustain positive relations with NV-HIE stakeholders including ONC.<br>• Responsible for services related to outreach, adoption, training/education/ advisory services (in coordination with REC), and potential participation with the creation of work force (e.g., use of HIE in new practices as they form). |
| **HIE Operations / Information Management** | 2 to 3 | • Responsible for development, integration, deployment, maintenance, and ongoing operation of the HIE applications and infrastructure.<br>• Responsible for services and reporting operations (e.g., service contracts, RHIO certification, ONC reporting, consumer interactions, etc.).<br>• Responsible for coordinating and collaborating with key stakeholders of the NV-HIE. |

| Organization Component | Head Count | Key Responsibilities and Considerations |
|---|---|---|
| **Business and Contract Operations** | 1 to 2 | • Responsible for the ongoing financial sustainment of the NV-HIE Business.<br>• Responsible for establishing HIE stakeholder contract agreements as well as contracts with RHIOs operating within Nevada to deliver certified HIE services.<br>• Responsible for internal Human Resources (HR) function.<br>• Responsible for all internal business systems including HR, Finance, Customer Relations Management, and Procurement/Contracts Management. |
| **Policy, Medical, and Innovation Management** | 2 to 3 | • Responsible for overseeing medical viability of the HIE services being delivered.<br>• Responsible for monitoring and assessing impacts of health reform, policy changes, and new mandates from ONC and other federal/state entities.<br>• Responsible for working with health community and patient groups to confirm usefulness of deployed HIE services and to identify/define care innovations to be enabled by future NV-HIE services.<br>• Responsible as HIPAA Security Officer. |
| **TOTAL (Excluding Board)** | **8 to 12** | Subject to adjustments over life cycle of the NV-HIE Business formation. |

### 13.1.5 NV-HIE Legal/Policy Development[3]

The state is committed to establishing comprehensive policies that protect privacy, strengthen security, and allow clinicians and public health authorities to have critical access to health information when and where needed to improve health care delivery and health outcomes for all state residents. The NV-HIE must provide policy guidance addressing privacy and security needs for interoperable HIE among its participants, including: consent, authorization, authentication, access, audit, breach, confidentiality, data integrity, and data availability.

#### 13.1.5.1 Enabling Legislation

In advance of the creation of legal polices and controls, the state has first addressed the creation of enabling legislation that allows for the promulgation of the required statutes, regulations, and polices. To this end, the State HIT Coordinator has led the creation of Senate Bill 43 (see **Appendix B**), signed into law by Governor Brian Sandoval during the 2011 session of the Nevada Legislature.

The legislation achieves the following goals:

- The DHHS Director is designated as the State HIT Authority, overseeing the coordination, procurement, development, and implementation of the statewide NV-HIE infrastructure and other health information technology initiatives, establish the governance framework for oversight, accountability, possible licensure, and regulations of intra-state, interstate, and national HIE, and be authorized to promulgate supporting regulations.
- While Nevada has many provisions in place regarding the maintenance and retention of electronic medical records and the protection of electronically transmitted personal health information (PHI) and individually identifiable health information (IIHI), the certified EHR systems required by HITECH, along with the ability for HIE, will require new provisions regarding the maintenance and retention of EHRs, supporting HIE and meaningful use requirements, and safeguarding individual privacy and

[3] With exception to the "Enabling Legislation", much of the content from this subsection was developed directly from or has leveraged North Carolina Statewide HIE Operational Plan, v1.1, October 25, 2010.

unauthorized access. It is the responsibility of the DHHS Director to promulgate regulations establishing the necessary standards.

- The HIE and meaningful use requirements of HITECH may require additional provisions to further protect consumers from unauthorized access to their personal health information and to prevent personal and/or medical identity theft, with the DHHS Director authorized to promulgate the necessary regulations.
- Certain existing provisions seem to be a barrier to the electronic prescribing of medications, which is a HITECH mandate. These provisions may need to be amended to meet new federal requirements.
- It is possible that Nevada's health IT technical infrastructure will include centralized or quasi-centralized data storage of the PHI contained in EHRs. If Nevada chooses to pursue a path of a health record repository (as the Nevada Medicaid Department is pursuing currently), it would require the creation of a new type of business entity and the DHHS Director would be granted authorization to promulgate the necessary regulations for the establishment, licensure, oversight, accountability, and regulation of this business entity (i.e., the NV-HIE Business).

Key provisions of the legislation include:

- Section 5 specifies the powers and duties of the DHHS Director as the state health information technology authority, requires the Director to meet federal HIE requirements, authorizes the Director to promulgate necessary regulations, and permits the acceptance by the Director of gifts, grants, and donations to carry out the provisions of the bill.
- Section 6 requires the Director to establish the HIE governance entity (NV-HIE Business) to meet federal requirements.
- Section 7 requires the Director to establish standards for the security and confidentiality of EHRs and HIE alignment with applicable federal laws.
- Section 8 imposes requirements for the transmission of EHRs and participation in HIE, making it a misdemeanor to commit to certain acts related to EHRs and health information exchange.
- Section 9 provides immunity from liability for providers who in good faith rely on information received from an apparently genuine and accurate electronic health record through an approved HIE to make patient care decisions.
- Section 11 requires a patient's consent for electronic transmittal of health records via an HIE, and specifies a patient's rights.
- Section 12 ensures that electronic health records maintained according to the bill's provisions also comply with other laws concerning written health care law records and Directives, access to health care records, and confidentiality of health care records.
- The Board of the NV-HIE Business is required to meet under Nevada Open Meeting Law at least four times during the state fiscal year (July-June).
- The provision of immunity for care providers is extended to health information exchange.

Senate Bill 43 was read for the first time on February 7, 2011, the first day of the 2011 session of the Nevada Legislature, and referred to the Senate Committee on Health and Human Services. A subcommittee was assigned to work on clarifying and friendly amendments. On April 11, 2011, the full committee sent the bill to the Senate, with the recommendation to pass with amendments. On April 26, 2011, the amendments were

approved, and the 1st reprint was printed (**Appendix B2 – Senate Bill 43 1st Reprint**). SB43 was passed during the 2011 Legislative Session.

The NV-HIE Business will establish a NV-HIE Legal/Policy Workgroup(s) to develop and refine the regulations and policies that will govern the NV-HIE on an ongoing basis. The following subsections outline major activities and/or desired outcomes for policies.

#### 13.1.5.2 Consent

Consumer or patient consent is the process by which consumers control the exchange of their health information through an HIE and can be a tool to allow health care providers access to more complete health information, thereby strengthening the provider's ability to provide informed care and improving care coordination amongst providers.

The NV-HIE Legal/Policy Workgroup will provide input to the creation of policies that will dictate to what extent, and how consumers should be able to control the exchange of their health information while balancing privacy considerations with the overall vision of the NV-HIE and its potential impact on public health, the coordination of care, improved health care quality, and ultimately improved health outcomes as supported by better access to more robust patient data. The Workgroup will take into consideration the following for the Nevada consent policy[4]:

- Meaningful patient control over and protection of their health information.
- Quality, well-coordinated care.
- Delivery of high quality and well-coordinated care.
- Maximal quantity and quality (i.e., utility) of data.
- Protection against liability.
- Minimal administrative burden and cost.
- Maximum patient and provider participation.
- Access to data to facilitate payment and reimbursement for services to both providers and patients and to inform quality improvement activities.
- Maximum flexibility to sustain the exchange.
- Maximum ability to provide value to participants.
- Uses of health information available through the exchange.
- Whether and to what extent consumers may control which providers are allowed to share and/or access their information.
- Break the glass capability to obtain health information in emergency situations where consumer consent has not been granted.
- Consumer outreach and education efforts related to the consent decision.

[4] Melissa Goldstein and Alison Rein. "Consumer Consent Options for Electronic Health Information Exchange: Policy Considerations and Analysis." Prepared for the Office of the National Coordinator for Health Information Technology, March 23, 2010.

- Extent of security, enforcement, and remedies in place.
- A consent framework with regard to opt-in, opt-out, or a hybrid model.
- Consumer trust:
    - NV-HIE represents a paradigm shift in the way health information is shared.
    - Consumer trust is paramount to engender public support for the NV-HIE and ensure consumers' interests are protected.
- State and federal law requirements:
    - Federal law under HIPAA does not require patient consent to exchange personal health information (PHI) for treatment, payment or health care operations.
    - While in many cases consent is not required for treatment purposes, there are existing laws that require consent for (1) disclosure by certain types of care providers or (2) disclosure of certain types of health information.
- Clinical value of information:
    - The NV-HIE must include information necessary to provide effective treatment; without robust information, physicians will not participate and the NV-HIE will not be sustainable.
    - Allows maximum information sharing under current Nevada law.
- Technical feasibility and cost—generally the cost and technical complexity will increase with requirements to exclude certain types of data and/or providers.
- Administrative burden and implementation cost—deployment of consent policies require varying degrees of involvement, resources, and cost among providers and other HIE participants.

Finally, the workgroup will need to consider consent models from three perspectives: (1) under current Nevada law; (2) under revised or recommended law changes; and (3) ability to address for interstate information sharing.

#### 13.1.5.3 Authorization, Authentication, Access, and Audit

The NV-HIE will establish policy guidance relative to authorization, authentication, access, and audit for the NV-HIE. These policies will be critical to facilitating trust among participants in the NV-HIE statewide HIE system that do not have direct relationships or contractual agreements at the individual organization level. The NV-HIE will adopt and comply with established national standards to the extent they exist and are applicable to the NV-HIE. The privacy and security policies will continue to be evolved by the NV-HIE Business to afford maximum protection to its participants and the information that flows through the HIE.

**Authorization**

The NV-HIE Business will establish authorization policies and procedures for verifying the identity of all individuals accessing patient health information through thestatewide HIE system. The ability of authorized users to access patient health information through the HIE will be based on a minimum set of role-based access standards that apply to all participants. The NV-HIE''s authorization policy will, at a minimum, include the following:

- A process and registry for verifying the identity and credentials of individuals seeking authorization to access/exchange health information.

- A set of systems and processes to enable specific access permissions approved for the individual seeking access.
- A process for providing individuals seeking authorization the information and mechanisms to be authorized when accessing/exchanging health information upon approval.

Principles for role-based access to be defined including:

- Establish and implement role-based access standards;
- Principles of user access permissions;
- Minimum required role-based access categories;
- Special policy consideration for disaster situations;
- Regular monitoring and updating;
- Termination of access;
- Sanctions for violations of role-based access; and
- Standards.

**Authentication**

Authentication is the process for verifying that an individual or system that has been authorized and is requesting access to information or services through the NV-HIE is in fact who he or she claims to be. Authentication policies are an important technical security safeguard used to protect patient health information from unauthorized access; the policies establish minimum requirements that participants in the statewide HIE system must follow prior to enabling access to an authenticated individual through the statewide HIE system.

The NV-HIE Business will adopt and comply with national policies that require a minimum level of authentication for verifying the identity of all individuals accessing patient health information through the HIE. In establishing the appropriate authentication level, the policy will need to take into account:

- Technical considerations.
- Operational considerations and barriers to adoption.
- Costs.

The NV-HIE Legal/Policy Workgroup will review the statewide HIE technical model and develop a recommendation for authentication, addressing key questions including:

- What should the policies and procedures established through the NV-HIE require as the minimum authentication assurance level?
- Should the policies and procedures mandate use of minimum technologies to support those assurance levels?
- Should the policies and procedures established through the NV-HIE require/allow use of more stringent authentication policies and procedures for sensitive information?

**Access**

Access policies establish minimum behavioral controls that the NV-HIE Business will implement to verify that access to patient health information is only granted for purposes consistent with patient consent and with any role-based access standards for which individual users have been authorized.

All Qualified Organizations participating in the NV-HIE will be required to follow:

- Training requirements for educating authorized users about the policies and procedures for accessing/exchanging patients' health information through the NV-HIE that meet or exceed the NV-HIE's basic requirements.
- Common sanction policies to address policy or procedural violations related to access to or the exchange of patient health information through the NV-HIE.
- Standard policies related to user names and passwords, failed-access attempts, periods of inactivity, and other activities to be identified by the NV-HIE.
- Standard policies related to de-provisioning and removal of accounts for departed users.

The NV-HIE Business will develop policies and procedures that require training for authorized users on use of the statewide HIE and recommends that training is done by participants as part of HIPAA or other staff training. The NV-HIE Business will explore the possibility of creating a website with online training materials; and will consider whether to require attestation of completion of training (including possible consideration of testing for comprehension), and whether attestation should take electronic or paper form.

**Audit**

Audits are oversight tools for recording and examining access to information (e.g., who accessed what data and when) and are necessary for verifying compliance with access controls developed to prevent/limit inappropriate access to information. Audit policies will establish minimum requirements that HIE participants must follow when logging and auditing access to health information through the NV-HIE.

The NV-HIE Business will develop an audit policy that requires periodic audits and outlines procedures for audits related to:

- Data access;
- Data integrity;
- System performance;
- Compliance with HIE policies; and
- Legal subpoena.

All Qualified Organizations participating in the NV-HIE will be required to meet or exceed the NV-HIE Business minimum standards for routine auditing of individual access to patient health information through the statewide HIE system. Minimum standards should address:

- What activity and information must be logged;
- How long logs must be retained;
- Frequency of audits and who must conduct them;
- Minimum sample size for audits;

- Public availability of audit results; and
- Minimum security of audit logs.

Audit policies should be sensitive to limited resources of smaller HIE participants, and may be made scalable (e.g., larger participants expected to implement more intensive activities than smaller participants) if appropriate.

**Breach**

A breach is, generally, an impermissible use or disclosure under the HIPAA Privacy Rule that compromises the security or privacy of the protected health information such that the use or disclosure poses a significant risk of financial, reputational, or other harm to the affected individual.

The success of the NV-HIE is dependent on participants' trust that the exchange is secure and that personal health information will be protected. The assigned workgroup(s) will establish policies, procedures and security standards to prevent security breaches from happening in the first place, but if a breach or suspected breach does occur, the NV-HIE Business will need to be prepared by adopting a set of policies and procedures for both the NV-HIE and participating Qualified Organizations to facilitate swift resolution.

Principles for breach management that need to be defined include:

- Compliance with the law;
- Need for accountability;
- Commitment to preventing breaches;
- Implementation of a breach notification policy and breach plan by the NV-HIE Business;
- Implementation of a breach plan by participant in the NV-HIE Business;
- Obligation of participants to report actual and suspected breaches; and
- Minimize burden on participants.

#### 13.1.5.4 Confidentiality, Integrity and Availability (CIA)

The NV-HIE Business will only collect, use, and/or disclose individually identifiable health information to the extent necessary, the data quality and integrity will be reasonably protected, and individually identifiable health information will be protected with reasonable administrative, technical, and physical safeguards to ensure its confidentiality, integrity, and availability and to prevent unauthorized or inappropriate access, use, or disclosure.

The CIA framework is a widely used benchmark for evaluation of information systems' security, focusing on the three core goals of confidentiality, integrity and availability of information:

- **Confidentiality.** Protection of information from being viewed or read by individuals who should not access it. Loss of confidentiality can happen physically (e.g., theft) or electronically (e.g., lack of encryption or lack of protection against spyware).
- **Integrity.** Protection of information from being modified without the modification being authorized. Unauthorized modification of information can be intentional or accidental. In addition to human error or malicious intent, accidental integrity loss can happen at a system level (e.g., file deletions caused by a computer virus).
- **Availability.** Assurance that information is available to be accessed when a user attempts to access it. To support its commitment to the principles of CIA, the NV-HIE Business will:
    - Develop a policy/approach, in partnership with assigned workgroups and in alignment with its breach policy, regarding data encryption.
    - Develop a policy on data integrity, including defining the NV-HIE Business role in protecting data integrity and specifying a set of expectations for participants in the NV-HIE related to implementing data corrections once misinformation is identified.
    - Develop a set of requirements for participating organizations in the NV-HIE related to ensuring availability of data, including expectations for organizations from whom data will be sought (depending on the adopted technical model) and timeframes for availability, response times, and scheduled down times for maintenance.

#### 13.1.5.5 Next (ongoing) Steps

The NV-HIE Business supported by a Nevada Legal/Policy Workgroup which will:

- Address a number of important privacy issues, including the protection of information relating to services provided to minors without parental consent and the right of emergency providers to access information about individuals who have otherwise denied consent for the exchange of their records through the NV-HIE.
- Based on the guiding privacy and security principles adopted by the NV-HIE Board of Directors, draft specific policies that provide direction to HIE participants on how to ensure the confidentiality of information exchanged through the HIE on a day-to-day basis. These policies will have to address the process for obtaining patient consent when required, the administration of the opt-in consent system, the permissible uses of information, user training, auditing of system access, breach identification and notification, access controls, user authentication and a variety of other privacy and security issues. Policies addressing these issues will have to be developed before the HIE can become operational.
- Review and update as needed the NV-HIE Data Use and Reciprocal Support Agreement (DURSA).

- In partnership with the Nevada Office of Health Information Technology, pursue discussions with bordering states to mitigate obstacles to cross-border health information exchange in key medical trading areas.

### 13.1.6 Business System Development

The creation of the NV-HIE Business includes implementation of supporting the business systems required to run the business. The systems identified in this section may have linkages to the components of the HIE solution defined in the HIE Technical Architecture section, but are exclusive of the HIE infrastructure and applications.

While the NV-HIE Business will be responsible for determining business system needs and approach for development implementation, this section provides an outline of both.

#### 13.1.6.1 Business System Requirements

The following are the initial set of anticipated business systems required for the NV-HIE Business:

- HIE stakeholder contract management (e.g., data sharing agreements, reimbursements, etc.);
- HR system/service for payroll, benefits and personnel management;
- Finance management system;
- Customer relations management for opt-in/opt-out and complaints from residents/patients;
- Email services;
- Knowledge management (e.g., regulations, policies, procedures, communications repository, etc.);
- HIE monitoring and reporting services (e.g., tracking effectiveness of HIE to meet meaningful use objectives);
- Registration system/service for providers and commercial RHIOs/HIEs;
- Certification management system/service for commercial RHIOs/HIEs/providers allowing interoperability with the NV-HIE;
- NV-HIE Business website;
- Common resource for HIE stakeholders (e.g., patients, hospitals, primary care doctors, payors, etc.);
- Access to training (e.g., security requirements);
- Public forum to post Board meetings and other open forum governance meetings; and
- Infrastructure management system/services.

#### 13.1.6.2 Business System Delivery

There are several options for the delivery of NV-HIE Business Systems including:

- eBusiness cloud;
- Software-as-a-service (SaaS);
- Contracting with users of NV-HIE services (e.g., subscription, usage, hybrid); and
- Most importantly, the development of the HIE technical infrastructure and application services.

Technology and service vendors will be utilized to facilitate the delivery of the HIE and business services outlined above. The vendors will be contracted with directly by the NV-HIE Business.

## 13.2 NV-HIE Stage 1 Meaningful Use Implementation Plan

As suggested by the ONC issued Program Information Notice (PIN), a key element of Nevada's HIE Strategic and Operational Plan is support of providers' ability to meet the initial requirements for the meaningful use of certified EMR solutions in the acute and primary care settings. Based on the health IT statewide assessment and HIE gap analysis conducted for Nevada's HIE Strategic Plan and requirements established by the federal government for state HIE plans, the state has been addressing gaps in three areas since the initial ONC approval of this plan in 2011:

- Electronic prescribing (e-Prescribing);
- Receipt of structured lab results; and
- Sharing patient care summaries across unaffiliated organizations.

The following sections identify the key processes, the applicable requirements for meeting meaningful use, and the technical and non-technical mechanisms to increasing utilization and adoption.

The fourth subsection for Stage 1 meaningful use implementation provides the approach to fulfilling the common requirements of using DIRECT (e.g., creation and sustainment of a federated provider directory/registry operating model).

As the data collection for the landscape assessment and gap analysis remain ongoing activities, the NV-HIE will continue to adapt to existing and develop new remediation strategies and detailed plans over the course of the life of the NV-HIE program.

It is worth noting that a majority of Nevada is rural or frontier and therefore the entirety of these plans address these providers as a priority throughout the strategies and approaches defined in this subsection. While no less important to the overall strategy, the urban providers are less of a challenge due to geographic situations and will be handled by these strategies/approaches as well. The state maintains and regularly updates mapping the location of all providers in comparison to nearby labs and pharmacies. This analysis aids in monitoring and adjusting the priority of efforts and interventions based on greatest distances and the needed to provide at least one option to all providers that are willing and able to implement Stage 1 meaningful use capabilities. The initial work, though an ongoing effort, has already been completed. See Section 4.3.5 (NV-HIE Development) for the concepts and strategies defined to address the needs of the diverse geographic needs of the Nevada provider population.

### 13.2.1 e-Prescribing

The primary object of the Nevada Meaningful Use Plan for e-Prescribing is to enable providers using certified EHR systems, especially those eligible for incentive payments, to prescribe medicines to patients using the native e-Prescribing capabilities of those EHR systems. This implies that Nevada Medicaid will provide e-Prescribing connectivity services to at least one pharmacy for each of these providers as part of the state's meaningful use strategy.

#### 13.2.1.1 Current State

**Relevant Stage 1 meaningful use objective(s):** More than 40 percent of all permissible prescriptions written by eligible providers (EPs) are transmitted electronically using certified EHR technology.

Note: CMS addressed a frequently asked question of whether eligible providers can use intermediary networks that convert information from the certified EHR into a computer-based fax for sending to the pharmacy in fulfillment of Stage 1 meaningful use. According to CMS, if the EP generates an electronic prescription and transmits it electronically using the standards of certified EHR technology to either a pharmacy or an intermediary network, and this results in the prescription being filled without the need for the provider to communicate the prescription in an alternative manner, then the prescription would be included in the numerator.[5]

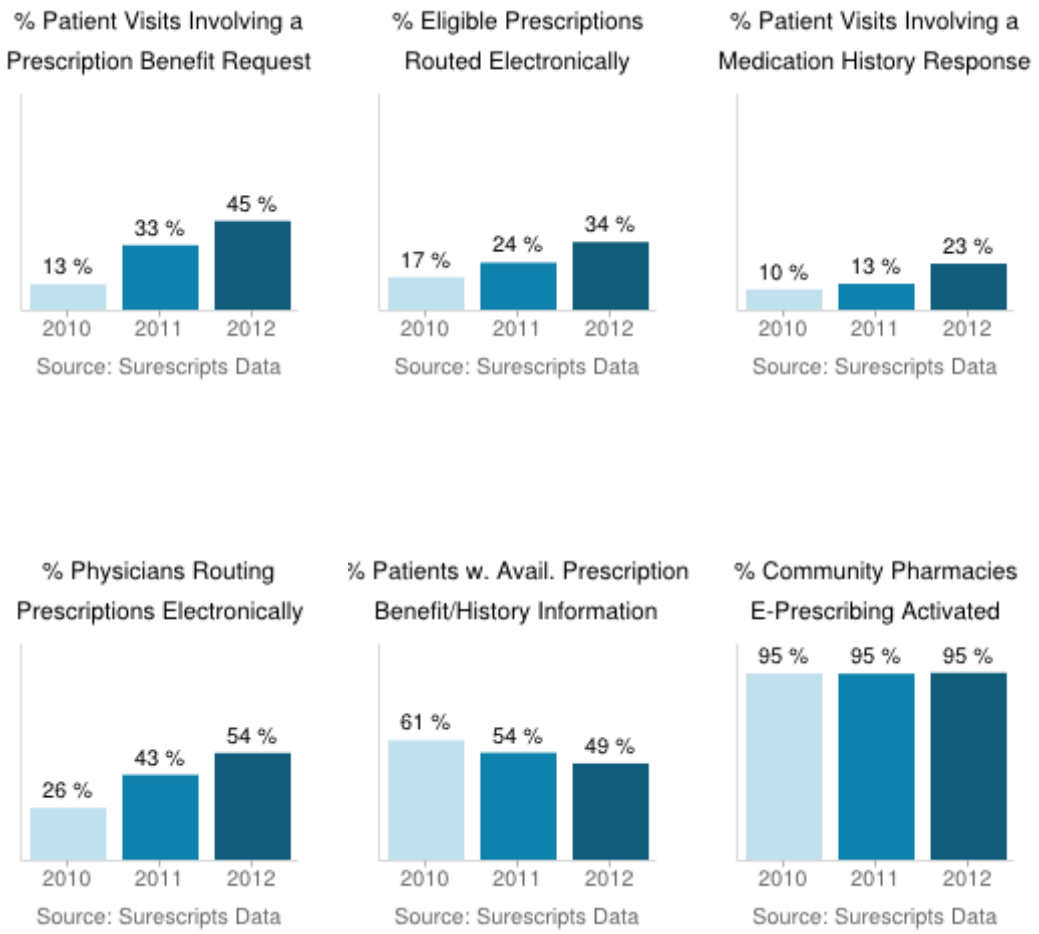
#### 13.2.1.2 Gap Analysis

As described in Section 5.2 of this Plan document, 402 Nevada pharmacies are enabled for e-Prescribing (Source: Surescripts®). In 2012, according to Surescripts, it was estimated that 34 percent of eligible prescriptions were routed electronically in Nevada[6]. This number has been increasing approximately 10 percent annually, since 2010. Small, independent and rural pharmacies face the largest challenges for accepting electronic prescribing and refill requests.

In the diagram below, various statistics compare EP electronic prescribing adoption rates against pharmacy electronic adoption rates here in Nevada. This illustrates where Nevada, working with the REC, will concentrate appropriate efforts in order to encourage optimal adoption of electronic prescribing capabilities across the state. A major consideration here for achieving readiness and adoption of electronic prescribing capabilities and services will also be impacted by geographic location and available connectivity. To this end, Nevada and the REC will work with the state's Broadband Task Force and other enabling entities to help resolve as much of the state's provider and pharmacy connectivity challenges as possible. In addition, OHIT uses the landscape tool provided by ONC to analyze potential gap areas on a monthly basis.

[5] https://questions.cms.hhs.gov/app/answers/detail/a_id/10137/~/%5Behr-incentive-program%5D-in-order-to-satisfy-the-meaningful-use-objective-for
[6] http://surescripts.com

**Figure 13-6: Nevada ePrescribing Adoption Statistics 2010-2012 (source: Surescripts)**



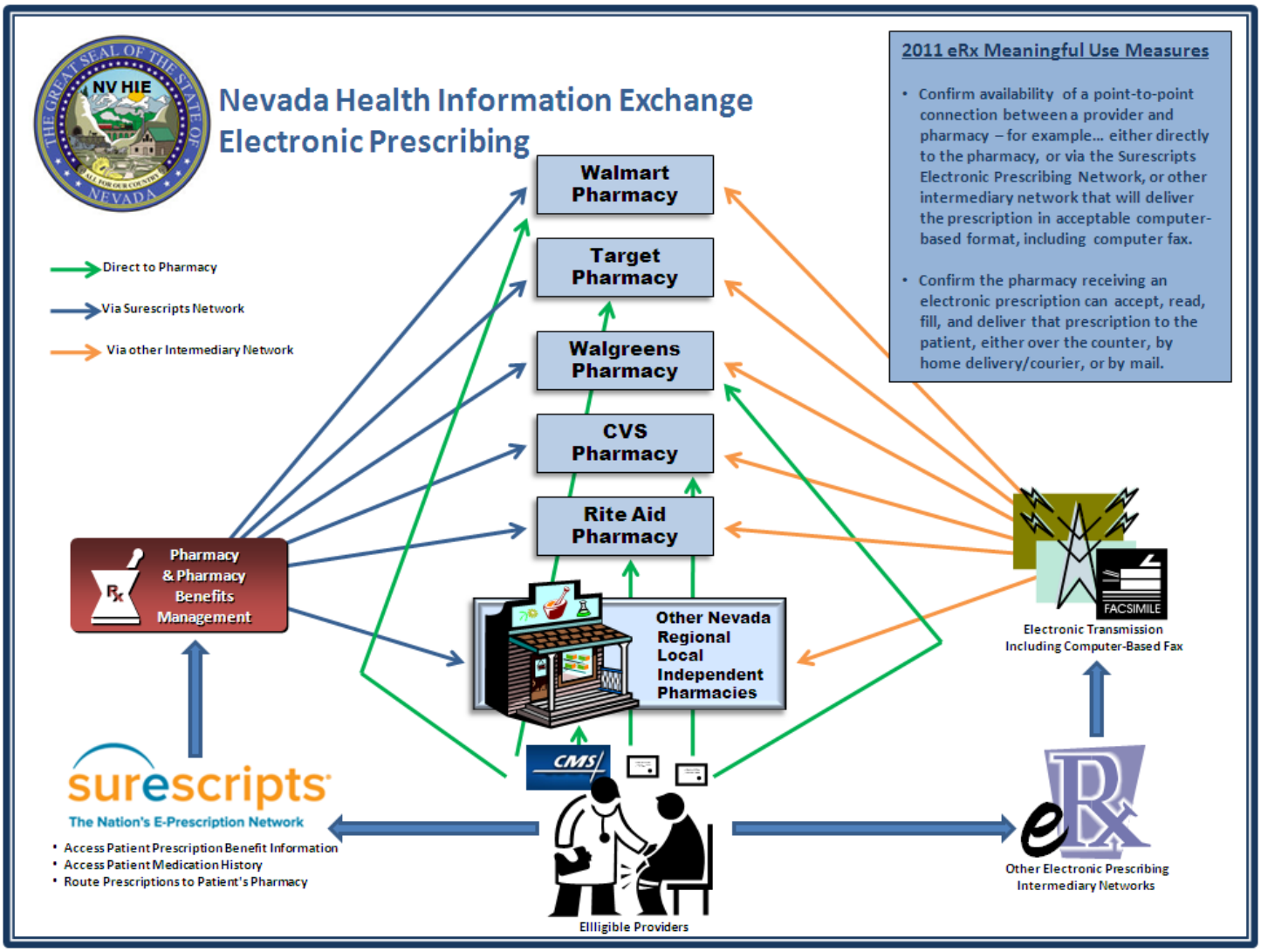

#### 13.2.1.3 Approach to Fill e-Prescribing Gap

While the number of enabled pharmacies is near 98 percent, enabled physicians do not appear to utilize e-Prescribing systems routinely. In 2012, Surescripts reported that the number of eligible prescriptions routed electronically in Nevada was only 34 percent, although it has been increasing by about 10 percent annually since 2010. There appears to be a lack of understanding by both physicians and patients regarding e-Prescribing and how it works, resulting in mistrust of the systems. DHHS and the NV-HIE will work together to encourage greater e-Prescribing adoption and routing of prescriptions electronically by physicians through education and outreach, via:

- Collaboration with the Nevada Broadband Task Force to ensure connectivity services;
- Joint outreach program with the Nevada State Board of Pharmacy, Nevada State Medical Association, Nevada Medicaid, and Nevada's REC that will leverage current communication media and events for awareness and education;

- Focused outreach to physicians regarding the benefits of e-Prescribing including reduction of duplicative submissions and medication errors, as well as system trustworthiness; and
- Focused outreach to Nevada residents regarding the benefits of e-Prescribing including system trustworthiness, reduction of medication errors, and more timely fulfillment of prescriptions.

**Figure 13-7: NV-HIE 2011 e-Prescribing Meaningful Use Measures**




### 13.2.2 Structured Lab Orders/Results

The primary object of the Nevada Meaningful Use Plan for structured lab orders/results is to enable providers using certified EMR systems, especially those eligible for incentive payments, to send lab orders and receive lab results using native capabilities of those EMR systems. This implies that the state will ensure provision of lab connectivity services to at least one lab for each of these providers.

#### 13.2.2.1 Current State

**Relevant Meaningful Use Objective(s):** The federal government's incentive program for the meaningful use of certified EMR technology includes both core and menu measures for structured lab data:

- Ensure the capability to submit electronic data on reportable (as required by state or local law) lab results to public health agencies and actual submission in accordance with applicable law and practice.
- Perform at least one test of certified EHR technology's capacity to provide electronic submission of reportable lab results to public health agencies and follow-up submission if the test is successful (unless none of the public health agencies to which eligible hospital or CAH submits such information have the capacity to receive the information electronically).
- Electronically record, modify, retrieve, and submit reportable clinical lab results in accordance with the standard (and applicable implementation specifications) specified in 45 CFR Part 170, §170.205(c) and, at a minimum, the version of the standard specified in 45 CFR Part 170, §170.207(c).
- Incorporate clinical lab-test results into certified EHR technology as structured data.
- More than 40 percent of all clinical lab tests results ordered by the EP or by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 or 23) during the EHR reporting period whose results are either in a positive/negative or numerical format are incorporated in certified EHR technology as structured data.

Even though many labs have the capacity to send lab results electronically, the lab process for small independent labs is still inherently paper-based. Outside of larger health care clinics, lab orders are typically printed and sent with the patient to the lab (when the lab work must be done at the lab). When lab work is performed in the provider's office, lab forms are printed and sent with the courier who picks up the lab samples from the provider's office. In these cases, the results are typically faxed, remote printed or mailed back to the provider's office.

Urban hospital labs typically interface directly with the information system used in the hospital. Doctors are able to request lab tests through the system. Once results are available, they are posted directly back into the hospital information system.

Rural hospital labs do not have the capacity to perform all the required lab tests. In these cases, the lab samples are sent to a third party lab for processing. These results are faxed or mailed, bypassing the hospital information system (though in some cases, the results are manually re-entered into the system).

#### 13.2.2.2 Gap Analysis

As described in **Section 5.3** of this Plan document, 100 percent of hospital labs and 84 percent of independent labs surveyed generally have the ability to send electronic HL7 lab results directly into providers' EMRs. **Figure 13-8** presents a breakdown of the laboratories in Nevada.

**Figure 13-8: Breakdown of Independent Laboratories in Nevada**

| Laboratory Name | # of Labs | % of Total |
|---|---|---|
| Associate Pathologists | 9 | 24% |
| Other Independent Labs | 16 | 42% |
| LabCorp | 9 | 24% |
| Quest | 4 | 10% |
| Grand Total | 38 | 100% |

LabCorp, Quest, and Associated Pathologists (60 percent of the market) have the capabilities to receive orders and send lab results directly into provider EMRs. Ten of the sixteen other independent labs in Nevada responded to our survey; and of that ten, five indicated that they submit results directly into provider EMRs (i.e., at least 30 percent are able to support structured lab results electronically**).**

#### 13.2.2.3 Approach to Fill Structured Lab Results Delivery Gap

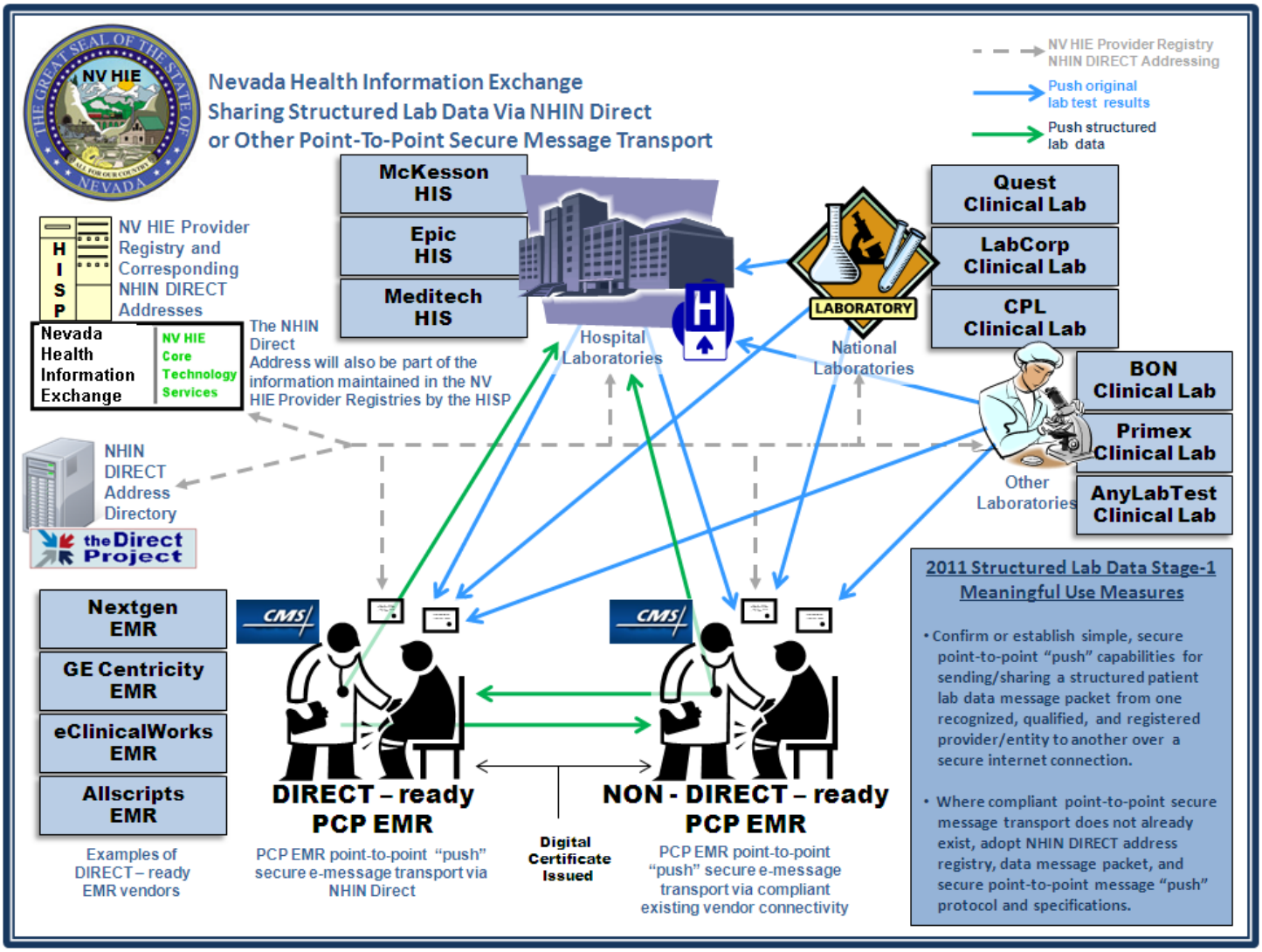
A primary strategic objective to resolving gaps in providers receiving and sharing structured lab data will be to enable instances of DIRECT where/when needed. DIRECT facilitates a simple one way point-to-point "push" message transport capability. Via secure messaging, DIRECT requires participants (providers, hospitals, labs, etc.) to obtain an DIRECT address and enabling digital certificate in order to locate, identify – and be identified as – a valid, eligible sender and or receiver of a structured lab data message packet(s) over the internet. Nevada may utilize an established HISP to maintain and manage a central provider registry/directory that corresponds with the DIRECT participant address (this will depend on the timing of the fully operational 501(c)3 and at what point a HISP is engaged to manage these aspects of DIRECT). This unifying provider registry/directory will be the core element of what is envisioned as a federated provider registry/directory model that will span two or more HIEs/HISPs. See **Appendix G – Stakeholder Outreach/Education - Specifications for DIRECT Addressing, Page 1 and Page 2**.

The following provides the key elements of the approach to be taken in filling the gap to enable electronic sharing of lab orders/results for meaningful use.

- Nevada and the NV-HIE will pay particular attention to the ability and readiness for stakeholders, including other HIEs/HISPs to utilize such data and messaging standards as LOINC, SNOMED, ELINCS, and others to facilitate semantic interoperability. The NV-HIE will assess these areas of interoperability and normalization/translation services and may decide to offer such services as part of HIE common core service offerings to all participating stakeholders.
- Identify the labs that are essential to providers seeking to use their certified EMRs for electronic structured lab orders and results. Collaborate with Quest, LabCorp and Associated Pathologists, Medicaid and CMS-Medicaid to identify small independent labs that may need to be enabled for structured lab orders/results by assessing claims from laboratories that do not provide electronic lab results and consider policy changes to increase adoption, such as health incentives, or requirements to participate in the delivery of electronic results.
- Provide electronic lab orders/results connectivity using one of four options:
  - Option 1: LabCorp, Quest, and/or Associated Pathologists utilizing today's methods of engagement;
  - Option 2: Connect to an independent lab enabled for electronic sharing of structure lab orders/results;

  - Option 3: Connect directly with local hospitals and IPAs that offer lab services (likely a rural/frontier option); or
  - Option 4: Utilize Direct to create a hub that would enable sharing of electronic lab orders/results.
- Initiate awareness program for providers. Program will be delivered by Nevada REC with support from LabCorp, Quest, Associated Pathologists, and local hospitals/IPAs.
- Work with Nevada REC to develop a co-branded "E-Lab Orientation Kit" document for distribution to providers. The plan will be to include information regarding benefits of sharing structured lab data as well as information related to implementing one of the connectivity options available to them (e.g., guidelines from LabCorp or Quest).
- Through the Nevada REC, determine the specific challenges associated with lab results for independent laboratory providers (be it lack of connectivity or economic concerns). It is anticipated that assistance will be most needed in challenged geographies where use of LabCorp or Quest is not possible or affordable. Following an assessment of the challenges being faced by independent labs, the state and the HIE Governance Entity will work together to develop a plan and apply the resources needed to address the specific needs. The plan will consider the following:
  - Collaboration with the Nevada Broadband Task Force for connectivity services;
  - Joint outreach program with the Nevada State Health Division that will leverage current communication media and events for awareness and education used as part of the laboratory licensing process;
  - Work with Nevada Rural Hospital Partners (NRHP) to support their member hospital with laboratory services that need assistance as well as independent laboratories in rural/frontier geographies where NRHP has the ability to support with their limited technical resources;
  - Utilize REC resources which are supporting primary care providers and in the geographies of independent laboratories that need technical and/or educational assistance; and
  - To the extent it is financially viable, contract with university and/or technical schools to obtain support staff from the student body that are trained to provide technical assistance necessary to support independent pharmacies.

**Figure 13-9: NV-HIE Sharing Structured Lab Data via DIRECT Mitigated Messaging**




### 13.2.3 Patient Care Summaries

The ability to create, transmit, receive and interpret patient care summaries can enhance a wide range of health services, including continuity of care, accurate/timely diagnosis and treatment, and, eventually, patient and care giver engagement.

The primary object of the Nevada Meaningful Use Plan for patient care summaries is to providers to use certified EMR systems, especially those eligible for incentive payments, to send and receive patient care summaries during the transfer of care between providers and to demonstrate one test in sending patient care summaries for public health purposes. This implies that the state will provide patient care summary (CCDs/CCRs) connectivity services to other provider EMRs and the public health services.

#### 13.2.3.1 Current State

Within Nevada, the importance of continuity of care has continued to grow, whether it is for individuals transitioning from rural care settings to tertiary care facilities, or those with mental health needs, or citizens navigating the Medicaid system.

The federal government's incentive program for the meaningful use of certified EMR technology includes both core and menu measures for patient care summaries.

- As part of the core measure set for Stage 1 meaningful use requirements, eligible providers and eligible hospitals and critical access hospitals who participate in the NV-HIE and the state's DIRECT Secure Messaging Services must perform at least one test of certified EMR technology's capacity to electronically send, via DIRECT Secure Messaging, one record of either a care summary, structured lab data, or an electronic prescription (e-Prescribing) to an authorized and authenticated recipient.
- As a part of the menu measure set for Stage 1 meaningful use requirements, providers and hospitals or critical access hospitals who transitions their patient to another setting of care or provider of care must provide a summary of care record for more than 50 percent of transitions of care and referrals.

Today, these capabilities are nearly non-existent in the State of Nevada.

#### 13.2.3.2 Approach to Fill Patient Care Summary Gap

A primary strategic objective to resolving gaps in providers receiving and sharing patient care summary data will be to enable instances of DIRECT where/when needed. The form of the care summary data may include:

- HL7 Continuity of Care Document (CCD);
- ASTM Continuity of Care Record (CCR); and
- Other agreed care summary record formats.

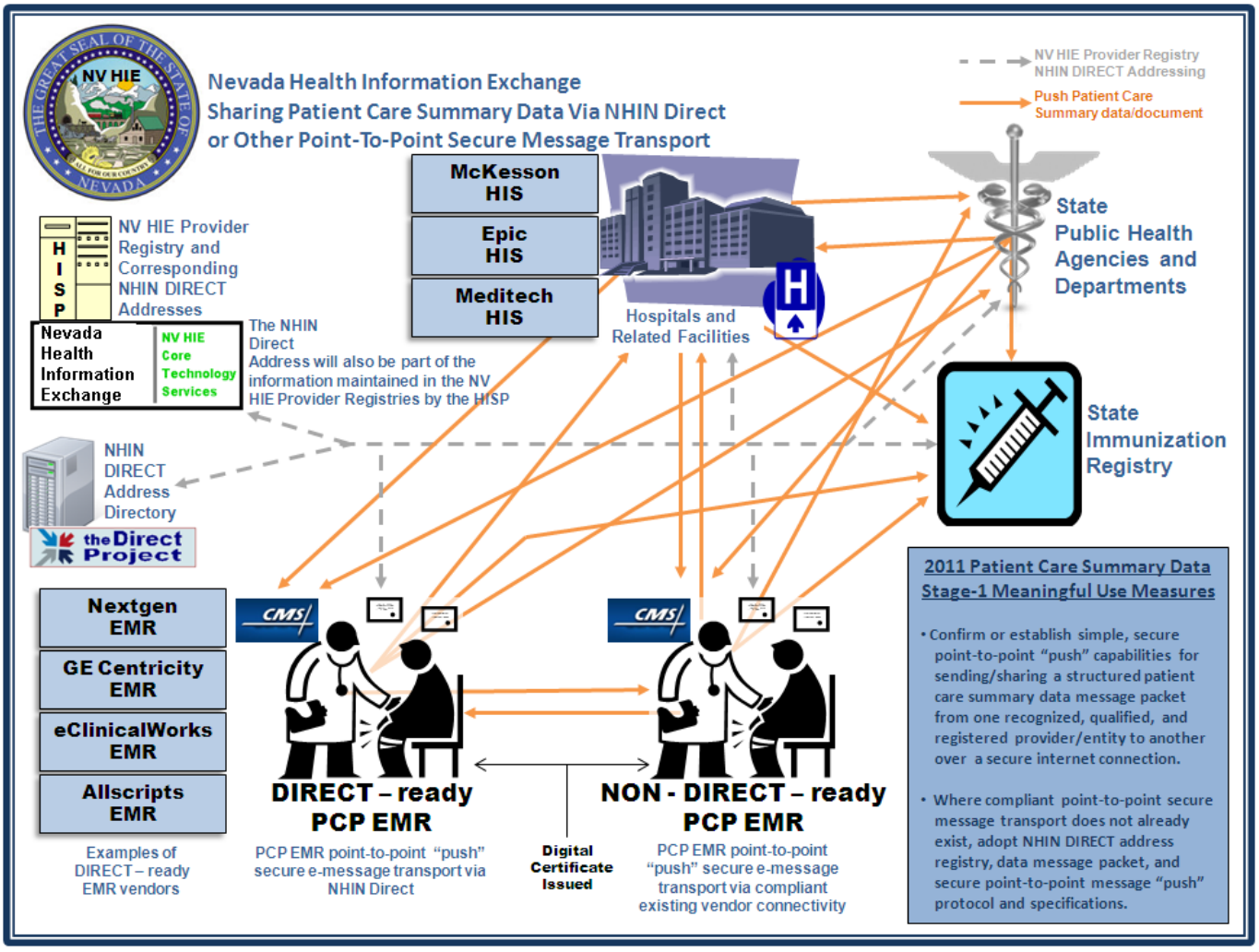
DIRECT facilitates a simple one way point-to-point "push" message transport capability. Via secure message transport, DIRECT requires participants (providers, hospitals, labs, etc) to obtain a DIRECT address and enabling digital certificate in order to locate, identify – and be identified as – a valid, eligible sender and or receiver of a structured lab data message packet(s) over the internet.

The following provides the key elements of the approach to be taken in filling the gap to enable electronic sharing of patient care summaries for meaningful use:

- Nevada and the NV-HIE will develop governance operations (policies, processes, agreement templates) for registering providers and enabling sharing of care summaries.
- The NV-HIE governance organization and/or HISP will establish required messaging infrastructure assets that support Direct-mediated messaging available through the ONC Direct Project. (as stated throughout various sections of this document, the state will initially offer and manage all aspects of DIRECT Secure Messaging until such a time when these services are transitioned to the fully operational 501(c)3 organization).
- The state - or at a later point, a HISP - will liaison with ONC to attain DIRECT addresses for requesting providers.

- NV-HIE Operations group, Software vendors to enable their EMR products for creation and receipt of CCDs from and into their EMRs automatically via DIRECT services.
- Enabling awareness and education to be delivered by Nevada REC, which could enlist appropriate support/input from NV-HIE and outer agencies and vendors.
- "Patient Care Transfer Orientation Kit" a co-branded NV-HIE/REC document will be developed for distribution to providers. The plan will be to include information regarding benefits of sharing patient care summaries as well as information related to implementing the connectivity service available to them (e.g., guidelines for Direct usage).

**Figure 13-10: NV-HIE Sharing Patient Care Summary Data via DIRECT Mitigated Messaging**




### 13.2.3.3 Major Activities & Milestones [Assignment (role)]

The following are the major activities and milestones identified as the initial plan for enabling Meaningful Use patient care summary sharing capabilities. NOTE: Meaning of roles is as follows: (A) = Accountable (leads work); (R) = Responsible (does work); and (C) = Consulted during work)

- Establish foundation of governance operations (e.g., information governance, data sharing agreements, etc.) [State HIT Coordinator (A & R); REC (C)].
- Establish agreement with ONC for provider certificate registration services [State HIT Coordinator (A & R); REC (C)].
- Ientory Nevada provider EMR systems to know which are "DIRECT enabled" [State HIT Coordinator (C); REC (A & R)].
- Develop NV Direct Patient Care Transfer messaging services with a selected HISP [State HIT Coordinator (A & R); HISP (R), REC (C)].
- Develop "Patient Transfer Orientation Kit" [State HIT Coordinator (C); REC (A & R)].
- Initiate ongoing operation and maintenance of the NS Direct Patient Care Transfer services [State HIT Coordinator (A & R)].

#### 13.2.3.4 Assumptions

- Nevada REC is proactively engaging providers to ensure they understand value and how to register with ONC for Direct certificate.
- ONC will provide the Direct solution components as well as implementation advisory support.
- Funding for development is available as a result of the approval of the NV-HIE Strategic & Operational Plan.
- Funding for ongoing operation and maintenance will be provided from CMS (leading benefactor of service value to be realized).
- A reliable and existing messaging infrastructure will be made available from the Nevada Rural Hospital Association.

#### 13.2.3.5 KPIs and Progress Tracking

- Key performance indicators (KPI) and progress tracking will be developed/determined by NV-HIE Governance/Operations in collaboration with CMS and ONC, and managed accordingly.

### 13.2.4 Approach to Supporting Secure Messaging Using Direct Messaging

See Appendix J for the Direct Implementation Plan for the approach, architecture, and timeline for Direct Messaging implementation.

## 13.3 NV-HIE Development (Stages 4-6)

It is the state's intention to have the NV-HIE (Operations) Business perform the work required to architect the NV-HIE, select the essential technologies and applications, integrate those NV-HIE components, and deploy them for use across the state and as a gateway to border states, as well as nationally via eHealth Exchange.

The work defined in this section relates to the final stages of Phase 2 (Creation) within the overall NV-HIE Implementation & Operation Approach depicted in **Figure 13.1**. These stages include:

- Stage 4 - Technology Definition and Selection.

- Stage 5 - HIE Solution Integration and Deployment.
- Stage 6 - Technology& Application Products.

### 13.3.1 NV-HIE Iterative Development Approach

Nevada will take an iterative approach to building the NV-HIE to meet requirements for connectivity, meaningful use, exchanging structured electronic laboratory transactions (orders and results), e-Prescribing, etc. It is clear that the value of the HIE will only be achieved when providers are connected and sharing useful, normalized, and understandable patient health information.

When comparing Nevada's overall HIE development approach to the State HIE Strategic and Operational Plans Emerging Models document recently published by ONC, Nevada's approach most closely aligns as a hybrid of the Elevator and Orchestrator models. In **Iteration One**, the NV-HIE will focus on rapid facilitation of Direct mitigated exchange capabilities in support of Stage 1 meaningful use (similar to the Elevator Model). Later iterations will build and expand on this initial infrastructure to create a set of core services that connect and support multiple regional, statewide, and national HIE service providers of robust exchange capabilities (similar to the Orchestrator model).

As such, Nevada's approach to the development and deployment of the NV-HIE will follow a pragmatic iterative approach that reflects the following:

- Current readiness of NV-HIE stakeholders;
- Readiness of existing EMR systems across the state;
- Current challenges associated with the readiness interoperability standards (data normalization); and
- Nevada state funding required to ready publicly owned and maintained systems for HIE participation (e.g., NEDSS, vaccine registry, etc.).

#### 13.3.1.1 Iteration One

- Focus on Medicaid providers and availability of data from the state's Medicare/Medicaid population and the deployment of certified EMR solutions via a software-as-a-service (SaaS) model.
- Value is immediate for those providers.
- Complexities associated with interoperability of heterogeneous EMRs are reduced significantly.
- BAA and other required contracts needed for HIE participation and data sharing are already in place between providers, data trading partners, and the state.
- Issues related to citizen/patient opt-in/opt-out are resolved within phase one.
- Portal applications ready.
- Meaningful use achieved.

#### 13.3.1.2 Iteration Two

The primary task is the continuing on-boarding of additional NV-HIE provider stakeholders. At this point, the HIE will support bi-directional information sharing and exchange. Authorized stakeholders can perform queries against data in the statewide HIE system, and provide near-real-time (or as expedient as possible) clinical information updates to the HIE.

Stakeholder HIE connection services may include:

- Hospitals/IDNs.
- Clinics.
- PCPs/IPAs.
- Payors.
- Other local independent HIEs within the state.

#### 13.3.1.3 Iteration Three

At this point the NV-HIE is fully operational. This includes compatibility and connectivity to the eHealth Exchange. Additional value services and products may be integrated into the HIE. The HIE can grow as a business and value-added service provider.

- NV-HIE functions as a gateway to other HIEs and the eHealth Exchange.
- NV-HIE continues to expand as a business.
- New sustainability and revenue streams explored.

### 13.3.2 Technology Definition and Selection

As the NV-HIE considers its technology requirement, it will also review and consider any opportunity to leverage existing Nevada capabilities and facilities. At this stage in planning, the governance and operations group is not yet in place—it is with the Governance/Operations group where these related tasks with take place.

### 13.3.3 HIE Solution Integration and Deployment

NV-HIE solution integration and deployment will be following the phased approach described in Section 13.2.1. The HIE project timeline will most likely be impacted by other official state processes, but will still need to be responsive to ONC expectations, realization of meaningful use, etc. The plan will be managed accordingly.

Deploying the enabling NV-HIE architecture to share clinical information and summaries, including a Continuity of Care Document (CCD) and other data early in the HIE life cycle will be a critical aspect of HIE success. The concise, patient-centric data acquisition and management, and all capabilities for "meaningful use" and day-to-day HIE operations will be fully in place at this point.

### 13.3.4 HIT/HIE Adoption

HIE adoption by the Nevada health care community—including patients, clinicians, providers, employers, state agencies, payors, and others—will be a major task and objective of the NV-HIE.

Nevada faces some considerable challenges as a mostly "frontier" state in terms of creating infrastructure, identifying state border issues (where Nevadans only choice for primary care physicians, hospital and specialty care may exist only across state lines), and other connectivity and adoption issues. Additionally, there are physicians and other care outlets that lack EMR's, and currently may not fall within EMR, structured (lab) data, and meaningful use guidelines for CMS incentives programs. Particular attention and effort will be afforded to connecting those providers and health care outlets that are challenged by lack of technology, geographic situation/location, and disposable capital to otherwise invest in updating and improving their clinical and operational capabilities to participate in the NV-HIE.

Nevada is collaborating with stakeholders and representative groups to develop an understanding of the HIE and expectation for use/participation. Nevada is doing this by prioritizing and partnering with (including but not limited those on this roster):

- The Division of Health care Financing and Policy (state Medicare/Medicaid operation);
- The Nevada Hospital Association;
- The Nevada Rural Hospital Partners (sub-group of Nevada Hospital Association);
- The Nevada Broadband Task Force;
- The Nevada State Medical Association;
- Universities;
- Primary Care Physicians;
- Major national Commercial Laboratories;
- ACLU of Nevada;
- Nevada Health Care Association;
- Nevada Immunization Coalition;
- AARP;
- Patient Privacy Rights Foundation;
- Nevada Indian Health Service;
- DoD/VA;
- Nevada Regional Extension Center (REC);
- Nevada Nurses Association;
- Health Services Coalition;
- Health Insurance Plans;
- Nevada Health Insurance Exchange (SSHIX); and
- Nevada Office of Consumer Health Assistance.

The NV-HIE will also work with various state agencies and public information outlets (universities, libraries, community centers) offer outreach, education, and communication of the state's progress and participation opportunities.

A thorough approach to adoption, on-boarding, usage, and overall communications and organizational change management (OCM) is being readied by the state to drive the launch and sustain the HIE program. Nevada will certainly keep ONC informed of this exercise and progress as needed.

### 13.3.5 Technology, Application Products

Once the 501(c)3 nonprofit and technical operations organization becomes functional, the tasks of evaluating solutions vendors and selecting specific products will be the charge of this group.

## 13.4 NV-HIE Operations (Stages 7-8)

### 13.4.1 Governance and Operations Oversight

The once established, the staff of the NV-HIE Business will perform the associated tasks as outlined in section 13.1.2, 13.1.3, and 13.1.4 on a daily basis. These tasks include the governance efforts of the Board, the Executive Director, and the Governance Operations team as well as the daily delivery of HIE and Business Services to external and internal customers.

### 13.4.2 Evolution, Operations and Maintenance

Following the implementation of the HIE and Business Support services on the selected technical infrastructure, the NV-HIE Business will establish the resources, process, and ongoing operational capability to evolve, run, and maintain those services. The major aspects are articulated in the following subsections.

#### 13.4.2.1 Infrastructure Considerations

The NV-HIE Business will host or contract for hosted infrastructure to support the development, testing, training, staging, and production of the NV-HIE and supporting Business Systems. Infrastructure planning and deployment will take place throughout. Production operations planning will take place once requirements are confirmed and design is complete. Network connectivity and other infrastructure testing activities will be included.

#### 13.4.2.2 Information Security & Assessment Activities

An Information Security Plan will be developed to document information security services and will be maintained in accordance with industry and federal standards, as well as HIPAA and related state laws and/or regulations.

#### 13.4.2.3 HIPAA Compliance

NV-HIE services will comply with the requirements of HIPAA Privacy (45 CFR Parts 160 and 164), HIPAA Security (45 CFR Parts 160, 163, and 164), 42 CFR Part 2 requirements for Substance Abuse information and all state privacy and security rules.

Data accessed through NV-HIE will be identified at the data element level. This allows for the redaction of certain data while sharing of others. Such data elements will be identified as belonging to substance abuse/behavioral health treatment or particularly sensitive data that patients may choose not to have released, such as HIV status, sexually transmitted diseases, etc. Patients will have the option of participating in the NV-HIE and may be afforded the ability to authorize the sharing of sensitive information. Additional privacy requirements that are established by the NV-HIE governance process and Nevada regulations will be incorporated.

To comply with HIPAA regulations, the location of NV-HIE infrastructure must be in a secure physical environment with access controlled to those individuals who can be identified as needing access. Further, access to the server must be controlled by locked access. Data must be covered by a contingency plan that allows for emergency access in the event of a national disaster. Data storage must be in a secure location off site and backup must occur on a regularly scheduled basis. Employee workstations will be located away from public access and will be governed by automatic log-off procedures when work stations are unattended for specified periods of time. Maintenance of equipment will be logged and monitored and any storage devices will be properly destroyed or data permanently removed.

Administrative safeguards will be carefully controlled by the policies regarding how people use, access, and store data. A risk assessment will be conducted and identified risks quantified and mitigation strategies developed. All users of data will be offered training and security reminders must be an integral part of security

compliance. Technical safeguards will cover the integrity of data as it is stored within the NV-HIE and as it is transmitted. Users will be identified within the system and audits track the access to the data by the users. Data will be encrypted and data moving within the system will be controlled by user authentication procedures and system protections. Integrity controls will protect the data and assure that it has not been altered or tampered with during storage or transmission.

#### 13.4.2.4 Business Continuity and Disaster Recovery

Disaster recovery services will be managed, maintained and delivered for the production and development environments. Plans, and the future modifications of these plans, will be developed, reviewed on regular intervals. Maintenance of the backup and recovery schedules will be undertaken through the change management process.

The regular testing will be performed to: Verify the compatibility of alternate sites and arrangements; Verify recovery procedures are correct; Identify deficiencies and revise the procedures; Provide education and training for teams; prove the disaster recovery plan; and facilitate a tool for maintaining and updating the plans.

#### 13.4.2.5 Configuration Management

During configuration management planning, a standard set of configuration management policies, processes, and procedures will be developed. The configuration management processes will support requirements, hardware, software, documentation, and data configuration item baselines.

Configuration management will focus on four major functions: identification, control, status accounting, and audits. Configuration baselines will maintained by check-in/check-out procedures supported by configuration management tools. Periodic internal audits will be performed to verify product and software baselines.

#### 13.4.2.6 Infrastructure/Applications Management and Operations

The NV-HIE Business will need to be prepared to deliver complete infrastructure and application management services with either internal or external (contracted) resources. These infrastructure services include data center, network management and monitoring, as well as all application management and maintenance support of the HIE and Business Support Service.

The infrastructure management outsourcing services will include:

- Monitoring the application, operating system and database;
- Security access, both physical and logical;
- Performance tuning and problem resolution;
- Performance planning and capacity management;
- Backup, recovery and off-site tape storage;
- Installs and upgrades of the operating system, database and application;
- Batch planning and monitoring; and
- 24 x 7 x 365 help desk.

The NV-HIE Business will operate according to a set of standard performance service levels including:

- **Data Backup.** 100 percent of all regularly scheduled backups;
- **Data Recovery.** 100 percent of all data restore requests are successful;

- **Application Availability.** A service level of 99 percent uptime for network infrastructure, systems and devices supporting the hosted website application; and
- **Application Reliability.** A service level of zero major outages due to failure to achieve a Mean Time to Repair (MTTR).

#### 13.4.2.7 Capacity Planning

On a calendar quarterly basis, the NV-HIE Business will analyze the key metrics provided by the various hardware and software systems (e.g., CPU, Memory, Local Disk Utilization, network utilization, etc.) that are being hosted. Based upon the analysis of these metrics correlated with the daily, monthly, and quarterly transaction load on the system, the team will provide additional Network, Server and/or storage capability as required to meet agreed to performance levels. Additionally, disk storage requirements for the next calendar quarter will be reviewed with recommendations for any increase or decrease in the managed storage capacity.

#### 13.4.2.8 Change Requests

The NV-HIE Business will provide for the ongoing support and management of the HIE and Business Support applications. The standard change management processes and tools will be used to record, track, and document any change made to the applications.

With the exception of emergency situations, all changes to NV-HIE Business servers and applications related components will be documented in a change management request, and approved in advance.

All emergency changes to NV-HIE Business servers will be made only by persons who are authorized to make such changes. This process prevents unexpected changes from inadvertently leading to denial of service, unauthorized disclosure of information, and other problems.

# 14 Program Plan

The Program Plan presented in this section is necessarily high level as it is the Nevada HIE Governance Body (NV-HIE) that will be responsible for the plan and the corporate organizational capability has not yet been established.

In this revision of the State HIT Plan, the content has been updated to accomplish the following:

- Retain the originally documented program management approach by incorporating the content into a subsection dedicated to that topic (Section 14.1);
- Added a section (Section 14.2) that presents a high level program plan for the creation of the Nevada HIE Governance Organization (e.g., governance model, procedures, an initial financial sustainability business model, communications strategy) as well as the HIE Technical Services (e.g., DIRECT Messaging Services, statewide core HIE services, health insurance exchange (SSHIX) collaboration strategy, Nevada health IT scan and assessment);
- Added a section to document major assumptions identified to date (Section 14.3); and
- Added a section that outlines an initial set of delivery risks identified to date along with preliminary risk mitigation strategies (Section 14.4).

## 14.1 Program Management Approach

The Nevada State Health IT program will be structured into a number of work streams with each being operated as a project within the overall program. This section provides a brief overview of the management approach and process controls that will be put in place to validate that the work required is being performed within each of these projects.

A project work plan will be developed that is composed of a Work Breakdown Structure (WBS) and a Milestone Chart represented in an Integrated Master Plan (IMP) and an Integrated Master Schedule (IMS).

### 14.1.1 Integrated Master Plan

The Integrated Master Plan (IMP) is an event-driven plan that documents the significant accomplishments necessary to complete the work and ties each accomplishment to a key project event—milestones and accomplishments.

The IMP is a key scheduling tool for managing the project. The IMP aligns all key project events into a single time-phased view providing a tool to derive change management communications to all internal and external stakeholders. The IMP is a milestone chart, which focuses on the initiation and conclusion of major project milestones and accomplishments as key events. The IMP will be used to manage all activities on a weekly basis and will review it regularly throughout the project lifecycle. The IMP will be updated when events or problems occur that require management action and we will report status directly from the updated IMP.

### 14.1.2 Integrated Master Schedule

The approved IMP becomes an input to the IMS. The IMS for the NV-HIE Business formation, Business Systems, and the operational NV-HIE will be a multi-layered schedule of project tasks required to complete the work effort captured in the related IMP. It will include all IMP events and accomplishments and support each accomplishment closure criteria.

The IMS will be a calendar-based network schedule that will track task progression, show interrelationships, and present the critical path and a breakout of required effort for each IMP event. The IMS will be used for the execution of the project to track schedule and support risk management activities. The IMS will provide detailed insight into project planning and project performance to illustrate project progress.

The IMS incorporates all of the IMP events and milestones, accomplishments, and entrance and exit criteria, and adds the detailed tasks necessary to fulfill the IMP criteria. Each task is time phased and the duration specified with its relationships to other tasks, e.g., predecessors and successors, identified. The IMS will also include details of significant risk mitigation activities. The IMS will be used to manage all activities on a daily basis and show management the linkages and dependencies with other projects within the organization, resources, activities, milestones, and deliverables.

### 14.1.3 Project Management Approach

This section outlines the metrics that will be used to measure progress and success of the projects.

The PM approach is adapted from the principles of Project Management Body of Knowledge (PMBOK):

- **Integration Management.** Processes which promote proper coordination of the various elements of the project.
- **Scope Management.** Processes designed to promote definition and compliance with the scope of work.
- **Time Management.** Those processes required to promote timely completion of the project.
- **Cost Management.** Those processes required to validate that progress is monitored and managed in accordance with the project budget.
- **Quality Management.** Those processes designed to facilitate satisfaction of project objectives.
- **Human Resources Management.** Processes to maximize effective use of project human resources.
- **Communication Management.** Processes which facilitate effective and timely communication with the client, team members and project stakeholders.
- **Risk Management.** Processes which identify, analyze, and respond to project risk.
- **Procurement Management.** Processes which facilitate the purchasing of goods and services from external suppliers.

A comprehensive set of tools will be used validate a structured, comprehensive, and proven approach to project management activities such as:

- Use of Microsoft Project software for the work plans and schedules.
- Adherence to the Project Management Institute's PMBOK standards for project management, risk management, and quality management.
- Adherence to industry standard methodologies for quality assurance, including Total Quality Management (TQM) and Continuous Quality Improvement (CQI) principles; Capability Maturity Model Integration (CMMI); IEEE 1012-1998/2004 standards for software verification and validation; ISO12207 for development life cycle management and ISO 17799 for information security.

### 14.1.4 NV-HIE Project Portal

As part of the original Nevada Strategic and Operational Plan, it was anticipated that the state would acquire an Enterprise Project Portal to support transparent reporting of project status and performance. Due to budget concerns, the use of such a tool will no longer be possible.

The requirement for progam and project management artifacts will be achieved via tools and approaches to be established with the Nevada HIE Governing Body. These artifacts include:

- Work Breakdown Schedule (WBS) development at a "task within deliverable" level;
- Project risk, issue, and scope change management functionality;
- Time capture against tasks;
- Tracking of percentage complete against tasks;
- Monitoring progress; and
- Producing an estimate-to-complete (ETC) for the month-end forecast.

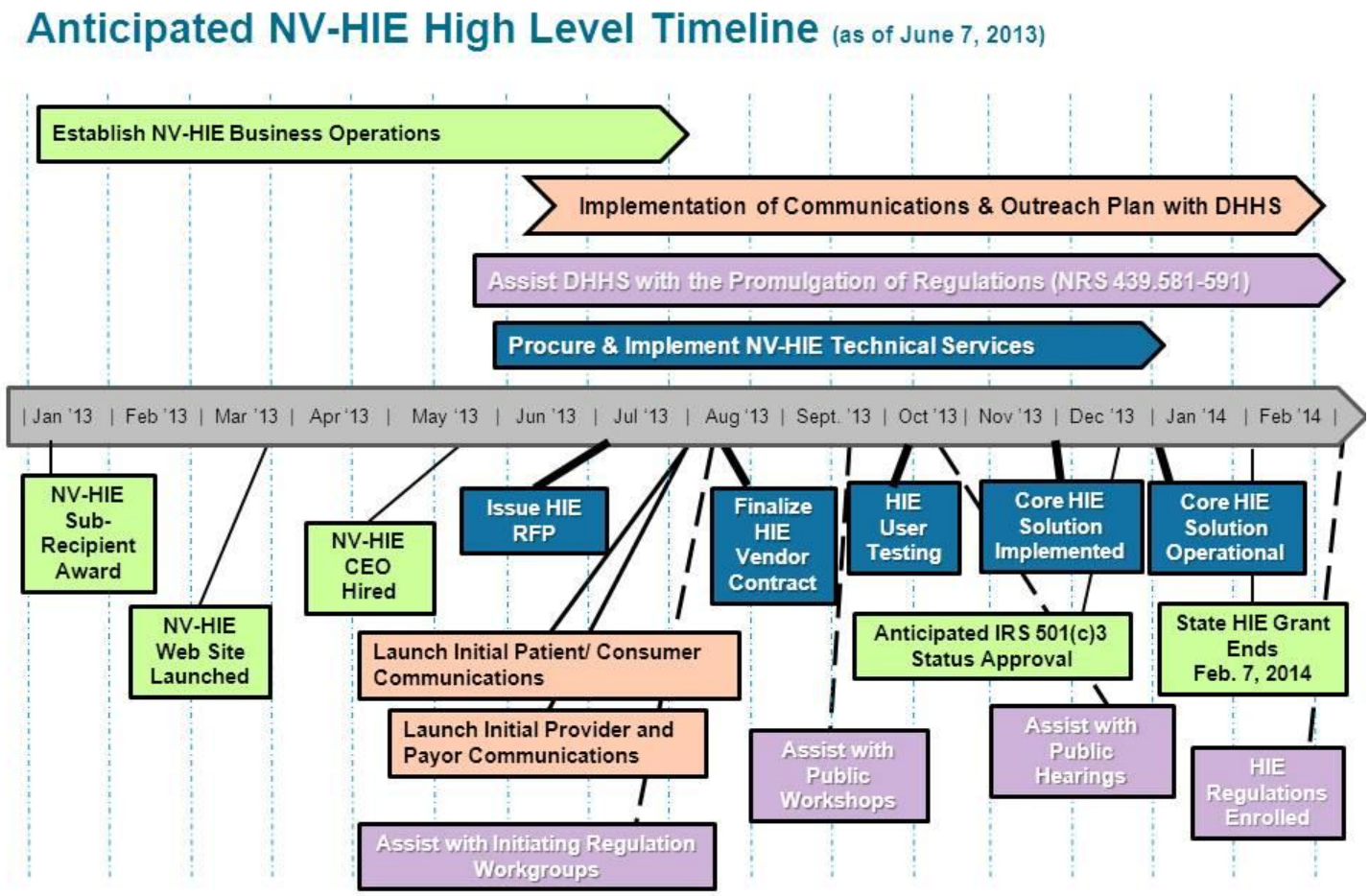
## 14.2 Program Staffing Plan

A personnel chart for the NV-HIE Governing Body along with initial definitions of roles and responsibilities are described in Section 13.1.4 (NV-HIE Business Organization and Staffing) of this document. A more comprehensive definition of the organizations involved in the Nevada HIE, their respective roles and responsibilities, the formal relationships between the organizations, and the NV-HIE governance model is being developed as part of the NV-HIE Operational Framework, Guidelines, and Processes. This document is separate from the Strategic and Operations Plan, and will continue to evolve in definition and detail as the NV-HIE Corporation becomes more mature in its operation.

## 14.3 High Level Program Plan

An initial Program Plan articulated in the Microsoft Project document attached (see **Appendix K**) has been developed as a starting point for future planning efforts following the creation and establishment of the Nevada HIE Governance Body which will be accountable for the delivery of the plan. This Program Plan includes the high level elements of the Program (i.e., the projects/workstreams, phases, and stages of the anticipated effort). The diagram in **Figure 14-1**, NV-HIE Milestone Chart will continue to evolve as the NV-HIE leadership and staff are brought into the organization.

**Figure 14-1: NV-HIE Program Milestone Chart**




## 14.4 Assumptions

The table in **Figure 14-2**, Nevada HIE Program Assumptions, provides a list of assumptions identified to date. As these assumptions become less likely to occur, the assumptions will be shifted to the risk list with mitigation strategies identified.

**Figure 14-2: Nevada HIE Program Assumptions**

| | |
|---|---|
| **1.** NV-HIE Governance Organization will be formally established with core staff hired by January, 2013. | Core staff is intended to mean individuals empowered to make key decisions regarding services to offer, creating operational capabilities, and establishing necessary technical services. |
| **2.** Funding approvals at federal levels will be granted in a timely fashion (often using accelerated techniques that work faster than what allowable times permit). | There are currently process delays in the enable decisions to take 30 days, because that is what is allowed by procedure. This program assumes that decisions can be made quicker than what is allowable. |
| **3.** The estimated pace of the enrollment for DIRECT Messaging will be achieved by mid-summer 2013. | There are a several key dependencies to achieving the pace of enrollment including market demand for a service that is not being requested. |
| **4.** There is sufficient demand for HIE services that a sustainable financial model can be defined and implemented to ensure that the statewide HIE organization and technical infrastructure is maintained into the future. | There is significant work to be done to generate the demand that is necessary to establish long-term revenue streams. It will be important to define a commonly understood value proposition for the key stakeholders in Nevada. |
| **5.** The state and the NV-HIE organization will move quickly in 2013 to communicate to the health market that they are creating a market leading HIE capability for all Nevadans that is independent and secure. | Currently, there are other HIE organizations attempting to establish themselves as market leaders in Nevada as the statewide HIE. This is generating market confusion and creating risk for the future success of the Nevada statewide HIE. |
| **6.** The minimal required broadband capabilities will be available to connect the Nevada's critical mass of providers to the NV-HIE statewide HIE system. | 90% of the State of Nevada is classified as frontier. As such, broadband access will be essential to those in the rural and frontier portions of the state where access to care is constrained. |
| **7.** The technical capabilities and resources needed to connect participants to the statewide HIE system will be available at a reasonable expense. | The health IT workforce in Nevada is limited. Contracting for integration services will be a short-term option and universities are adding programs to assist in the long-term. |
| **8.** The NV-HIE and its Finance Committee will develop conservative but realistic participant on boarding assumptions and will allocate resources accordingly to connect these participants. | During the early years of the NV-HIE, it is essential that proper financial practices are in place to verify that financial sustainability remains a top priority. |
| **9.** The State of Nevada, NV-HIE and its Board of Directors will actively engage their network in the Nevada health care ecosystem to promote the usage and adoption of HIE. | This is a major element of the communication strategy as well as the sustainability plan for creating and managing demand for HIE services. |
| **10.** The current state of the Nevada economy will not significantly impact the creation of a statewide HIE or any other requirements needed to operate a statewide HIE. | The Nevada economic situation is challenging. It is an assumption that could be considered a risk to the sustainability of NV-HIE. |

| | |
|---|---|
| **11.** Providers will have or obtain sufficient insurance to cover costs associated with data loss and system damage, breach notification expenses, and regulatory investigation expenses and any other costs as a result of civil suits related with health information exchange. | While SB 43 provides some indemnifications, providers do need to be aware of their risks and insurance needs. This has become an issue with getting NV DIRECT launched. |
| **12.** Providers will be able to meet the financial and operational requirements to participate in the NV-HIE core HIE services. | Provider adoption of certified EMRs will be an essential element of the NV-HIE success. |

## 14.5 Risk Management

An initial list of NV-HIE risks have been listed in Figure 14-3. DHHS, the NV-HIE Board of Directors, and staff of NV-HIE will be accountable for mitigating these and other risks identified with the HIE implementation efforts.

**Figure 14-3 – Nevada HIE Program Risks**

| | |
|---|---|
| 1. The estimated pace of the enrollment for DIRECT Messaging has been decided without supporting market analysis to demonstrate such demand. | The enrollment campaign has been setup to be focused on provider populations that are more likely to be need and use DIRECT Messaging Services. These providers have been identified as part of an initial Pilot and a Task Force for implementation. In addition, the state has agreements with Nevada Rural Hospital Partners and the Nevada State Medical Association who will help with recruiting providers to enroll in Direct. |
| 2. Improperly setting user participation fees at a threshold where providers are willing to pay for value. | The NV-HIE will establish a Finance Committee that will conduct business planning effort in collaboration with the NV-HIE and is charged with identifying the appropriate costs of deploying HIE services and supporting operations. The work of this group also includes determining provider on boarding assumptions and developing pricing strategies for services provided by the NV-HIE. |
| 3. Technical projects of this scale and complexity typically encounter delays and cost overruns. | The NV-HIE will adopt an incremental, phased approach to designing and building the statewide HIE. Implementation will be rigorously and continually evaluated to identify problems and remediate potential problems, and the NV-HIE stakeholders will be continuously informed of status. The vendor solution requirements will include credentials demonstrating success in other statewide HIE implementations. |

| | |
|---|---|
| 4. Lack of provider use and or lack of provider participation. | The NV-HIE will develop a plan utilizing stakeholder representatives to educate providers on value proposition and to garner support. The NV-HIE will partner with its stakeholders to explore services to connect rural areas to the statewide HIE system. In addition, the state communication and outreach program is being designed to use a variety of techniques to drive increased adoption of HIT and the HIE. |
| 5. Security breaches. | Security breaches could undermine consumer and provider confidence and trust in the HIE. In line with ONC-HIE-PIN-003, the NV-HIE will develop extensive privacy and security policies and technology requirements with broad stakeholder representation. In addition, vendor solution security requirements will be rigorously defined. |
| 6. Consumer concerns about electronic health records, health information exchange and privacy/consent policies. | An extensive outreach and communication plan has been developed which describes the efforts to educate Nevada citizens on the benefits of HIE in improving the quality and safety of health care delivery and their rights as a citizen to access this information and the need for patient consent to exchange information. In addition, providers and the NV-HIE Help Desk will be trained and educated to inform citizens. The core message for consumers regarding privacy will be based on SB 43 and other part of state statutes. |

# Appendix A—Nevada Health Information Technology Statewide Assessment

This section contains the Nevada Health Information Technology Statewide Assessment.

# Appendix B Senate Bill 43 (2011)

This section contains Senate Bill No.43  As Enrolled.

# Appendix C—Addendum 1 to Health Information Technology Statewide Assessment – Health Information Exchange Gap Analysis

This section contains the state's Health Information Exchange Gap Analysis.

# Appendix D—State of Nevada Health Information Technology Regulatory and Policy Inventory

Pursuant to the requirements of the HIE Cooperative Agreement, a general statewide Health IT Regulatory and Policy Inventory and Health IT Medicaid-focused Regulatory Inventory were done to ensure state regulatory and policy harmonization with HITECH requirements. This section contains these inventories.

# Appendix E—Nevada Health Information Technology Blue Ribbon Task Force

This section presents the members of the Nevada Health Information Technology Blue Ribbon Task Force.

## Appendix F—Letter of Support

This appendix presents a letter of support from the State Medicaid Director.

## Appendix G—Stakeholder Outreach/Education (Example)

This appendix presents an example of potential Stakeholder Outreach and Education.

# Appendix H—HIE Broadband Analysis

This sppendix presents the HIE Broadband Analysis Report.

# Appendix I—Evaluation Plan

This appendix presents the Evaluation Plan.

# Appendix J—DIRECT Implementation Plan

This appendix presents the DIRECT implementation plan.

# Appendix K—Program Plan

This appendix presents the Project Management Plan.

# Appendix L—NV DIRECT Participant Agreement

This appendix presents the NV DIRECT Participant Agreement.

# Appendix M— Privacy & Security Framework: Collection, Use, and Disclosure Domain

This section contains the Privacy & Security Framework:  Collection, Use and Disclosure Domain

# Appendix N— Privacy & Security Framework: Safeguards Domain

This section contains the Privacy & Security Framework:  Safeguards Domain

# Appendix O— Privacy & Security Framework: Accountability Domain

This section contains the Privacy & Security Framework:  Accountability Domain

# Appendix P— 2012 e-Health Assessment and Survey

This section contains the 2012 e-Health Assessment and Survey